The Builder.

No. CXXIX.

SATURDAY, JULY 26, 1845.

ALL England has been railway mad,—perhaps it is so still; and the present session will be remembered by many members of the lower House as the session of "hard lines." From the office-messenger at eighteen shillings a week (we speak what we know), to hereditary legislators, men of all grades have been dabbling in shares, and we might say, women too; for one distinguished peeress, until this time better known at Almacks' than in the share-market, made 30,000 good pounds by *guessing* cleverly, what lines would be favourably reported on by the Board of Trade. To put down the *roulette* tables at Epsom may be very desirable, but there are larger gambling-booths at home, where Home Secretaries intrude not.

Men without money, but with a friend in the "direction," have obtained large allotments, speculating on a rise, and generally with success; indeed, up to this time, it seems tolerably certain that all have benefitted. Let us hope that before "calls" are made, the shares generally may have passed into the hands of men who really have capital to invest, and that thus the difficulty and distress which must otherwise be anticipated may be avoided.

The excitement in which thousands have been kept for several months past, first by the reports of the Board of Trade, then by the discussion of the general questions (the advantage or otherwise of the atmospheric system, and the relative merits of the broad and narrow gauge), and ultimately when reported on favourably by the special investigation of their own particular scheme before committees of both Houses of Parliament,—can hardly be described. The money spent in this latter stage must have been enormous (by some of the lines, it is said, as much as 1,000*l.* a day); and all but those personally advantaged by the expenditure must agree in wishing that some less wasteful mode of proceeding could be adopted.

In the course of a recent forced confinement in some of the committee-rooms, we have been led to cry shame on the undue advantage taken by landowners who possess influence, and have used that influence in opposition to projects of admitted utility, simply to extort an exorbitant sum of money as the price of their ultimate neutrality. In one case that we could name, 1,800*l.* per acre is to be paid by special agreement for land that the owner had contracted to sell only a short time ago for another purpose for 300*l.* per acre. If an owner is dispossessed of property against his will, he should unquestionably be paid handsomely for it, but surely the legislature should not allow him to use any accidental influence he may have, as, for example, being a member of their own body, to extort any unreasonable sum, which the company may be led to assent to rather than incur the enormous expense entailed by opposition.

The question of *metropolitan* railways is forcing itself on public attention, and several bold schemes have been propounded for connecting the principal lines in London. Amongst hese the Thames Embankment and City Railway Company, of which the following is an outline, has been received with more than usual favour by the press:—

"It is proposed to embank the river from Hungerford Market to Blackfriars Bridge, forming, in the space recovered from the shallow parts of the stream, public gardens, terraces, and docks, and along the edge of the embankment a double line of road; the outer portion as an atmospheric railway, the inner as a macadamized road for ordinary vehicles, with a pavement for foot passengers, communicating with the streets and wharfs, and also, by short viaducts above and below the railway, with landing-places from the river. At Blackfriars Bridge, or about the site of Paul's Wharf, the proposed double road will leave the embankment, and be continued along a new street sixty-six feet wide, leading to the Blackwall Railway and Whitechapel, and, by a short branch at Southwark Bridge, direct to the Mansion House. The railroad portion of the line will join the Blackwall at Fenchurch-street, or the Minories, and be carried along the middle of the new street, upon *an open frame-work of iron girders, at the level of the first floor windows*, leaving an under road of corresponding width for the usual street traffic, and opening throughout the whole line valuable frontages for building."

It thus presents two important and novel features,—the embankment of the Thames, as a money speculation (an achievement which seems too great for our Government), and the commencement of a system of railways through the public streets, out of the way of all ordinary traffic. Relative to these viaducts the *Iron Times* remarks:—"After careful consideration, we can find no objection to urge against them, save that they are *new*. This is a fault we are satisfied will rapidly amend with the perception of their high importance—of the millions per annum that will accrue in savings by reason of their adoption. Have any of our readers watched the erection of the new Houses of Parliament? There may be beheld a railway viaduct set up for the purpose of constructing a building, to be removed when the building is finished. Surely it must be worth while to construct such viaducts for permanent purposes as well as for temporary ones! As an economical plan, these railway viaducts may probably be constructed for about 40,000*l.* per mile. Of elegant construction they may amount to 80,000*l*, averaging 60,000*l.* Nor is it a mere speculation; the traffic exists—expensive horse traffic—where a saving of horses and a saving of time are both to be achieved."

The line will be in connection with the South-Western at Hungerford Bridge, and with the Great Western, and the London and Birmingham, either at the same point, or near Blackfriars Bridge, by a short extension of the City and Camden Town Junction, from their proposed terminus in Farringdon-street to the river.

Another project, instead of taking the railways over the ordinary course of traffic, takes them *under* it, and contemplates a series of tunnels, which would render London a huge warren and a perfect bore:—

They propose to establish their central terminus at or in the immediate neighbourhood of Hungerford Market, and upon a scale commensurate with the demands of an entire system of metropolitan railways. To proceed thus by tunnels of communication to the London and Birmingham Railway, to the Great Western Railway, the Eastern Counties, and, by subsidiary termini and approaches at the intersections of all the principal roads, to complete the connection between all the northern lines and every part of the northern suburbs. To continue these lines across the river to a station on the south bank, and thence to the Dover, Brighton, and South-Western railways, "thus completing the access to and from every part of the kingdom and the continent." The suburbs are to have a company of their own, and are to be reached on the atmospheric principle. It would thus seem, that having driven the stage coaches off the roads, the rail will now compete with the omnibus, and take us from one end of town to the other, either through the air or through the earth, at "six-pence all the way."

When railways were first projected, the towns near which they came strove to keep them as far off as possible, and spent immense sums in effecting what has been most injurious to them. They have now found out their mistake, and would gladly pay as many thousands to bring a station near them as they before spent hundreds to drive it off. Every town now strives for its line, justly feeling that without it, its importance must sink; and before long every village will have one too, or must cease to be a village. How strangely and how rapidly opinions alter! Before we find fault with others, still more, before we *burn* them for not thinking as we do, it would be well always to remember, that ere long we may actually think as *they* do.

THE QUEEN'S PAVILION IN BUCKINGHAM PALACE GARDENS.

HER Majesty's summer-house, concerning which so much has been said from time to time, is now completed, and will hereafter be regarded with interest, if not at this moment, as an early example in England of the use of fresco painting in decoration.

Within the last few years, owing to a number of concurrent circumstances, public attention has been directed to the combination of decorative painting with architecture, after the examples left to us by the great Italian painters and architects of the sixteenth century. The introduction, or rather the revival, of fresco painting in this country has become, in connection with a great national monument, a topic of general interest, an affair of national importance, and no longer merely a matter of private or artistic speculation. While curiosity and interest were thus strongly excited towards the subject, and our artists were occupied in considering its feasibility and the particular management of a vehicle almost unknown to them, it occurred to Her Majesty and His Royal Highness Prince Albert, that it would be well to have the experiment made on a small scale, yet under circumstances which might lend it a more than common interest, and at the same time offer to some of our first artists at once a high motive and a fair opportunity to try their powers in this new *old* method. The idea was surely a happy one; and not the less seasonable that every one who had considered the subject (at least every one who understood it), felt that it was a method which presented particular difficulties to some of the ablest and most distinguished of our painters, whose habitual style of execution, whose aim in point of treatment of their subject and effect, had been precisely the reverse of what is required in fresco.

The application of fresco painting to the decoration of architecture demands the adaptation of parts to a whole; a preconcerted mode of treatment, in which the painting shall seem to be in unison with the original design of the edifice; the harmonious combination of many minds, working under the direction of one mind, to one purpose: and, with regard to the mechanical part of the process, it requires much thought and study in the preparation of the materials, and great care and precision, as well as great rapidity, in the execution.

The advantage of mingling in the interior decoration of a building isolated figures and historical subjects with arabesque ornaments,

has been proved to be twofold. If the locality be small, the space appears to be enlarged to the eye by the involution and continuation of multiplied and varied forms and colours; while, if the dimensions be large, the interest is concentrated by the presence of a leading idea, connecting all these separate compartments and all this maze of variety into one harmonious whole. The wild and dream-like arabesques are like vague, delicious music; the historical subjects form resting-places for the fancy; and the two in combination are like the lyrical drama,—action, sentiment, and melody woven together.

The building in question is very small,—quite a toy, and is situated on an artificial mount in the gardens, and overlooking the ornamental waters. The view from the terrace in front of it is beautiful, and will keep the stranger on his first visit, for some time outside the object of his search. Nash understood well the art of landscape gardening, and displayed much skill in these grounds. It is almost impossible to believe the proximity of this spot to bustling town, it is so still and luxuriant; and the triumphal arch at Hyde-park-corner, seen above the trees, renders the effect of the whole almost magnificent.

The entrance to the pavilion opens into the principal apartment, an octagon 15 feet 9 inches from side to side, and 14 feet 11 inches in height to the centre of the vaulted ceiling. It is here, in eight lunettes at the foot of the vault, that the frescos from "Comus" appear, of which for the most part types have been exhibited in the rooms of the Royal Academy by the respective artists. Over the entrance door, an indifferent place, is Stanfield's, illustrative of the following passage:—

"Yet some there be that by due steps aspire
To lay their just hands on that golden key,
That opes the palace of Eternity.
To such my errand is."—Comus, v. 12—17.

It is admirably transparent, and exhibits more power over the material than the majority of the works. Passing round with the sun, Mr. Uwins' follows, having for motto,

"This is the place as well as I may guess,
Whence even now the tumult of loud mirth
Was rife."

Then comes Leslie: Ross follows. Eastlake's is over the mantelpiece; Maclise, Edwin Landseer, and Dyce, complete the eight. A copy of Mr. Eastlake's work is now in the Academy exhibition, and will be remembered by all. The lines illustrated are,

——"If virtue feeble were,
Heav'n itself would stoop to her."

Maclise shews the lady spell-bound in the marble chair, and displays much of his usual power. Mr. Landseer has found in the following lines an opportunity to exhibit his great skill in depicting the brute form:—

——"Their human countenance,
Th' express resemblance of the gods, is changed
Into some brutish form of wolf or bear,
Or ounce or tiger, hog or bearded goat."
Comus, v. 68—71.

Comus, surrounded by his crew, is terrified by the approach of the brothers, who appear behind in the act of rushing upon them. A bacchante, with a beautiful female form, and the head of a hound, has thrown herself in affright upon the arm of Comus. Other monsters, half brute, half human, in various attitudes of mad revelry — grovelling, bestial insensibility— confusion and terror — are seen around him; the pathetic, the poetical, the horrible, the grotesque, all wildly, strangely mingled. In the spandrils are two heads — a grinning ape, and a bear drinking.

Mr. Dyce winds up the illustrations with the presentation of the lady and her two brothers to their parents, who come forth to receive them, and he has produced what must be considered the best fresco, although wanting in the right sentiment.

The *lunette* in which this is placed was formerly occupied by Mr. Etty, and as many ill-natured comments have been made on the removal of the fresco executed by him, it is but just to say that the step was unavoidable. We are much pained that so distinguished an artist —the first colourist of the day,—should have his work superseded, but truth compels us to say, after careful examination of the removed panel, that the fame of Mr. Etty would have suffered materially if it had been allowed to remain.

Two other rooms open out of the octagon apartment: one to the left, which is purely *Romantic*, the subjects being all taken from the novels and poems of Sir Walter Scott, and the other to the right, which may be termed *classical*, having all the ornaments Pompeian.

The walls of the first room are painted in imitation of grey marble by Moxon, and form decidedly the best specimen we ever saw. The perfection of the face was attained by varnishing it ten times, and rubbing it down after each coat.

The subjects from the novels were painted by H. J. Townsend, C. Stonhouse, J. Severn, R. Doyle, and J. Doyle. The small landscapes are by E. W. Dallas, and the bas-reliefs were executed by J. Bell and H. Timbrell. The ceiling of the Pompeian room was designed by A. Aglio. The arabesques in the panels of the octagon room were painted by S. Rice, of the School of Design: the carving of the doors in the same room were by G. B. Lovati; the ceiling was painted by E. Morley; all the stuccoes were by G. W. Nicholl, and the plaster work of Walter Scott's room by Bermasconi.

In concluding our notice, it is right to mention that the whole arrangement of the decorations, after the completion of the eight frescos, was confided to Mr. Lewis Gruner, the author of a fine work on "Fresco decorations in Italy during the 15th and 16th centuries," with the express stipulation that all the artists employed should be English. The Prince is said to have taken considerable interest in the works, and Her Majesty has been pleased to order that they should be engraved and published.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

CLOSING MEETING.

The meeting held on Monday last was one of more than ordinary interest. The chair was taken by Mr. Papworth, and Mr. Donaldson introduced the Duke of Serradifalco, with a well-deserved eulogy on his researches into Sicilian antiquities, and his uniform kindness to members of the Institute. His grace was not merely an honorary member, but he had contributed five volumes, the fruits of his labours. The antiquities of Sicily were peculiarly interesting: the Doric order was essentially different from the Doric of continental Greece, the Temple of Corinth being the only example, which at all resembled in proportions the Sicilian order. The island had been favoured not only in art, in architecture, in bronzes, in statuary, but was a country of great natural beauty and productiveness. Its rivers abounded with fish, its caverns with sulphur, and a deep veneration for art had possessed the people. The work of the Duke of Serradifalco consisted not merely of measurements, but in the 5th volume were the deductions from his observations, matter tending to elucidate the principles of art. His grace was then formally admitted a corresponding member, and returned thanks in suitable terms. Mr. Donaldson, in announcing the contributions from foreign members, commented upon the peculiar satisfaction which must be felt at this, the closing meeting of the session, in receiving the completion of two great works on architecture, the one on Sicilian antiquities, and the other the work of the Cavaliere Luigi Canina. The latter was the most complete illustration of architecture, that had ever appeared, and as the production of an individual, was in the highest degree meritorious. It illustrated the Egyptian, Greek, and Roman styles, in all their variations, and was not a compilation, but the result of a most careful study of the monuments themselves. It consisted of numerous folio plates, with accompanying letter-press; one volume for each style, illustrating its history, and a second descriptive of the examples. Hitherto, a complete work on Grecian architecture had not appeared, but the want was now supplied. Another work, by the same author, on the temple at Jerusalem, was also announced, and though not so satisfactory as the other, had some novel views on this speculative subject. The secretary announced the present of ten guineas to the library fund from Mr. Sydney Smirke, and of Quatremère de Quincy's "Lives of Architects" from Mr. Bellamy, and read the report on the adjudication of the premiums. The committee found a decided superiority in the drawings furnished, and awarded a copy of Wilkins' "Vitruvius" to Mr. W. Wood Deane, for the best design for a portico to an assembly room. The design was praised for the effective treatment of the coffers, and ceiling of the portico, and it was noticed, that the modillions in the pediment had been omitted, as well as the antæ: but it was presumed, that the absence of the former was deemed essential to the proper effect of the sculpture in the pediment. The report also noticed, that the Greeks were in the habit of constructing the lower course of the wall in a portico, of blocks of great height, and that the Romans occupied a similar situation with a plinth, and surbase moulding, with a dado between; these points, it appeared, had not been availed of by the competitors. A copy of Britton and Pugin's "Public Buildings of London" was presented, for the best series of sketches, to Mr. Judge, who also received a copy of Wood's "Letters of an Architect," for notes of papers read at the Institute. The medal of the Institute was presented to Mr. S. J. Nicholl, for an essay on the various species and qualities of slates. Mr. Donaldson then read a letter from Vicenza, stating that one of the members of the academy there, was engaged in preparing a life of Palladio, and requesting the assistance of the Institute, in procuring access to the drawings and autograph of Palladio, in the possession of the Duke of Devonshire.

A description of an antique portico at Damascus, communicated by W. R. Hamilton, Esq., honorary fellow, was read by the secretary. It was first described in 1838, at the Royal Society of Literature, having been discovered by him, a considerable time previous. His visit was made at a period, when travelling in the East was attended with great danger, and therefore he was unable to make a very careful examination. He observed, that there were six granite columns, supporting an entablature and pediment, and that in the centre intercolumn, the entablature was carried across in the form of an arch. The style was clearly that of Baalbec and Palmyra, and the date therefore referrable to the time of the Antonines. The cornice had great projection, but had less height than usual in works of like date. The ruin was covered with rubbish, up to a short space below the capitals, but the feet of the columns appeared in the bazaar below. It was the only known example of Roman architecture in Damascus, and might have been a part of the Temple of Serapis. It was seen by Col. Leake and others, and from their observations, and those of Mr. Hamilton, all that had been known of it up to the present time was gained. In 1844, however, it was seen by Sir Gardner Wilkinson under more favourable circumstances, and he succeeded in getting sketches of it, and some measurements. The columns were calculated to be 42 feet in height; they were set rather close, with a wider space for the centre intercolumn. The whole entablature took the curve of the arch, the dentils radiating to the centre, and the dentils of the pediment were placed at right angles to the raking mouldings. At the spring of the arch, in the tympanum of the pediment, were square apertures, the use of which was not apparent. The angular column was united to two pilastres in a curious manner, the mouldings of the pediment and entablature being broken, as observable in some caprices of Italian production. At this period, some remains of columns were found in other parts of the city.—Mr. Donaldson commented upon the extraordinary disappearance of architectural works in that part of Syria. The prejudices of the Jews long prevented the admission of the Roman style, but at a later period, it could not be doubted, that the country abounded in Roman works, which it was the system of the imperial government to raise in the countries subjugated, and we were aware that in other parts of Syria, as in the Decapolis, and in Arabia Petræa, at Petra, were magnificent works. Mr. Scoles stated, that in his journey to Damascus, and in other parts of Syria, he had seen a great number of fragments of the Roman Corinthian order, of which there had been no mention by any traveller. When at Damascus, although he had examined every

part of the city, he was not aware of the existence of the portico described, which had not been mentioned to him by Mr. Hamilton, till subsequent to his visit.*

An account of the remains of the ancient city of Agrigentum was read by Mr. Angell, who said, that amongst the ruins of Magna Græcia, none were of greater interest than those he was about to describe. They had not the awful solitude of Selinus and Pœstum, but occupied a most picturesque site near the modern city of Girgenti. Their architectural character would afford much matter for examination. To any one who might visit them, the Capuchin convent in the neighbourhood would afford comfortable lodging, and occasionally no bad cheer. Amongst the remains were those of several temples of the Doric order. The Temple of Juno Lucina was hexastyle, peripteral, and formerly contained the celebrated picture of Juno by Zeuxis. There were some remains of the peribolus. The Temple of Concord was similar in plan to the Temple of Juno. Of the Temple of Esculapius, the only remains were a part of the cella, and fragments of the staircases to the roof; but it had been ascertained, that it was a temple *in antis*. The Temple of Hercules was the largest after the Temple of Jupiter Olympius; one column was standing, but a restoration had been published by the Duke of Serradifalco, who had found traces of polychromy. The Temple of Jupiter Olympius was the second in magnitude, of all the temples of ancient Greece; it was never completed, not having had a roof. The Greeks had two modes of arrangement in the plans of temples; one was that of the *naos*, with columns *in antis*, or portico at the end, and the other, where the *naos* was surrounded by columns. The temple under notice partook of both modes; the columns being, as it were, built into the wall, appearing circular without, and square within. The structure was of vast size, each flute of the columns being, as described by Diodorus, wide enough for a man to stand in, or two feet at the lower diameter. Mr. Cockerell's restoration, in the fifth volume of Stuart's "Athens," has seven columns in the front, the telamones, or Persians, being placed within the naos for the support of the roof. These figures were twenty-five feet in height, and represented the giants conquered by Jupiter; in style of art they resemble the Eginetan sculpture, though the pediments were enriched with work of a better description. Sig. Raffaelle Politi, corresponding member of the Institute, had made a restoration entirely different to the one described, though he now admitted the greater probability of Mr. Cockerell's. The restoration was not, however, entirely unwarranted, as fragments of but three telamones had been found, and there was a passage in an old author, describing a building with three giants forming the portico; which figures had been inserted in the arms of the modern city. As the figures remain in the arms, Sig. Politi considered he had sufficient authority for considering the temple, originally built with a Persian portico. Besides the above, there are remains of the temples of Castor and Pollux, of Vulcan, and in the modern city, which was anciently the Acropolis, of the Temple of Jupiter Polyaenus. There was also a Temple of Ceres and Proserpine, and, in the modern cathedral, a sarcophagus, enriched with sculpture. Other remains in the city were those of the oratory of Phalarides, and of the tomb of Theron. The latter was one of those singular monuments, which the Agrigentines were in the habit of raising to their horses, and was the only one not destroyed by Hannibal. That general, finding that the monuments round the walls gave shelter to the besieged in their sallies, ordered them all to be cleared away; but a flash of lightning deterred the soldiers from completing their work. The monument is a singular edifice; it has Ionic columns, but a Doric entablature, and stands upon a lofty basement. In the intercolumns are recesses or doorways, diminished upwards. The piscina was a large basin, nearly a mile in circumference; it was used for the supply of the city with fish, and afterwards for bathing. Mr. Angell concluded his account with some interesting remarks on the former state of the city, and, quoting the words of Pericles, said that "the Agrigentines built like men who expected to live for ever, and lived as if they expected to die to-morrow."

Mr. Donaldson drew attention to the fact, that in Great Britain we were reproached for our restricted pursuit of wealth, and for our assumed inability to execute great works of art, whilst the people of Agrigentum, with a small territory, as well as all the cities of ancient Greece, depended solely upon commerce, and yet had produced works of unequal magnitude and beauty. He also made some interesting remarks upon the "heptastyle" arrangement of the columns, and said that there were other examples at Pœstum, and probably in the Temple of Hercules at Pompeii, and observed, that the Greeks often set at nought many of the rules, which we are accustomed to observe, when they thought, that in so doing, other advantages might be gained. In large temples, if there had been a centre intercolumn, there would have been a doorway, but in this case they preferred to put a column in the middle, and place a door on each side. The Duke of Serradifalco said, that he considered this was not the principal entrance, and shewed, from his work, that he had given six columns and a central doorway in the other front. Mr. Donaldson exhorted the members to greater activity in contributing to the interest of the meetings; and after thanks to the chairman, the meetings were adjourned to November next. * *

* We may here mention, that letters, which we have received from a corespondent in Syria, quite corroborate the statement, as to the existence of many architectural fragments, yet undescribed. They are built into the walls of cottages, or hollowed into water-troughs, and the carved frieze, on which the hand of genius revelled in ornament, is often turned into a receptacle for filth and ordure.

"Imperial Cæsar, dead, and turn'd to clay,
Might stop a hole, to keep the wind away:
O, that that earth, which kept the world in awe,
Should patch a wall to expel the winter's flaw!"

In a letter from Jerusalem, the writer says, "I am sending some antiquities found in digging foundations here; they are of the Doric order; the echinus is quite straight, and not curved in under the abacus, as we find it in the best Grecian examples; there are two of these; the others are the base and capital of a small column; the capital is, I think, good. Jerusalem is not the place for an architect, or an architectural antiquary; there are few ruins, and the whole of the city is buried in filth to an immense depth. At Ascalon, I found cornices, capitals, and other fragments, indicating something of interest there at a previous period. The fragment of a cornice was enriched with oves, and with the leaf ornament of the reversed cyma; it was in white marble, and fixed to mark the last resting-place of a Turk. There was also a capital of no decided character. I saw a good specimen of a Corinthian capital at Tyre, it was of white marble, hollowed out for the purpose of holding refuse water. I shall have much to tell you of other antiquities in Syria."

THE HEIGHT OF CHIMNEY SHAFTS.

AWARD UNDER THE BUILDINGS ACT.

It is necessary builders should bear in mind that in schedule F. it is declared, that any chimney-shaft (except that of a steam-engine. brewery, distillery, or manufactory,—subject to special supervision) must not be built higher than 8 feet above the slope, flat, or gutter of the roof which it adjoins, measured from the highest point of junction, unless such chimney-shaft be built of increased thickness, or be built with and bonded to another chimney-shaft, or be otherwise rendered secure.

Messrs. Grissell and Peto recently carried up the chimney-shafts of three houses in Greyhound-place, Grange-road, to a height of 12 feet 7 inches above the adjoining building, without what the district surveyor (Mr. Hesketh) thought the necessary additional precautions.

The matter was sent to the referees, and the award was, that the chimney-shafts were contrary to the Act, and that the same must be made conformable thereto. The expenses of the award and 2*l.* 2*s.* for the district-surveyor's time were charged to the builders.

Effect of new Railways on the Price of Coals in London.—Mr. Mahon, in giving his evidence before the committee on the Cambridge and Lincoln line of railway, stated that he had had the management of coal-mines in Derbyshire for twenty years past; that the coal-fields of Clay Cross, Wingerfield, and Staley, were capable of unlimited supply, and he believed that the Clay Cross and Staley coals were quite equal to the Durham. By the proposed new lines of railway these coals could be delivered in London at 14*s.* 10*d.* per ton; Erewash coals as low as 10*s.* 6*d.*; while the Wingerworth, which were not so good in quality, could not be delivered in London under 14*s.* 6*d.* per ton.

HOWDEN CHURCH, YORKSHIRE.

YORKSHIRE ARCHITECTURAL SOCIETY.

The quarterly meeting of this society was held in its rooms, Minster-yard, York, on Thursday, July 17th, the Venerable Archdeacon Wilberforce in the chair.

After the election of several new members, the presentation of works of archæological and architectural interest, and other business connected with the society, the following report of the restorations going on in the parish church, Howden, Yorkshire, was read:—

"Howden, July 16th, 1845.

To the Secretaries and Committee of the Yorkshire Architectural Society.

Gentlemen,—We beg leave to lay before you an account of the progress of the work of restoration of the parish church of Howden, towards which your society liberally granted us the sum of 40*l.*

1. As to the tower, the *upper* story has had all its louvering (lately composed of wood) restored. The wood has been removed, and blue slate, of the best and strongest quality, introduced in its stead. The second story has been *partially* reglazed. The stone work has been completely repaired, and the glazing done in a most substantial and workmanlike manner. The architect superintending the work has expressed his entire satisfaction in this department of the restoration. The work now effected only shews more fully the necessity of opening and glazing the whole of the windows in this story, which can only be effected at an additional cost of 60*l.* A floor which originally divided these windows in half has been removed, and the effect is truly imposing.

2. The east window is now in the course of insertion over the screen, which originally separated the choir from the transepts; the stained glass to fill it has been contracted for, and is in the course of execution by Mr. Wailes, of Newcastle, and in a short time this department of the work will be complete.

The screens to separate the new chancel from the transepts are of carved oak, and will be ready for fixing as soon as the masonry is perfect. When this is done, the new church will be thrown open to the nave; the pulpit removed from the centre aisle to the first pier of the nave, on the south, and the reading pew to the south pier of the church arch.

Other restorations have been effected, which, in the opinion of our architects, Messrs. Weightman and Hadfield, add much to the beauty and character of our church.

Having completed these restorations at a cost of 400*l.*, in addition to what your society so liberally granted, we hope there will be no hesitation in allowing the payment of 40*l.* to be now made to us on behalf of the object for which that sum was specially granted.

Whilst we feel deeply indebted to the Yorkshire Architectural Society for its past liberality, we trust we shall not be thought too encroaching if we ask a further donation to help us in carrying out to perfection the whole of the masonry and glazing of the tower, we pledging ourselves to make up the remaining money, and complete the work to the satisfaction of the society.—We beg leave to remain, your obedient and faithful servants,

T. Guy, Vicar,
W. Sugden, Churchwarden."

After the reading of this report, one of the secretaries of the society, who had previously visited Howden, made his official statement, which was as follows:—

"Howden, July 16, 1845.

To the Committee of the Yorkshire Architectural Society.

Gentlemen,—I have this day visited Howden, in order to inspect and report upon the restorations now going on in its parish church. I have carefully examined every part, and can most conscientiously state that the work so far accomplished has been of the most satisfactory kind. The zeal and skill displayed by the vicar, churchwarden, and architects are beyond any praise of mine; and whilst the Yorkshire Architectural Society cannot but feel gratified in having been the means of encouraging such a restoration by a liberal grant of 40*l.*, it will do well to meet any future appeal for further help by such assistance as may be in its power. In a few words, the work is most creditable to all parties concerned, and has excited in the

breasts of the parishioners of Howden an honest pride and desire to see their church restored to something of its original integrity. I remain, yours truly, JOSHUA FAWCETT."

The committee felt so perfectly satisfied with the work of restoration thus far advanced, that notice of a motion for an additional grant of money towards completing the glazing of the tower was given by the venerable chairman.

The antiquary and archæologist cannot better bestow his mite than by assisting the vicar and churchwardens in this spirited undertaking. We hope very shortly to see their most anxious wishes fully realized.

At a meeting of the society, subsequently held the same day, a paper was read on "The History and present Condition of the Churches of York."

GLASS.

AT a meeting of the Decorative Art Society, held July 9th, "a general view of the history and application of glass" was read by Mr. Cooper, and afforded considerable interest. He remarked on the 18th verse of the 37th chapter of Job, the translation of which has been rendered differently in some recent editions of the Bible,—on the construction of the Portland vase, as of layers of glass of different colours, cut away by drills in the manner of cameos; he exhibited drawings of Roman glass from examples in the British Museum, found at Reculvers, Canterbury, Hemel Hempstead, and elsewhere, and observed that the Romans were the first to introduce glass into this kingdom. He contended that plate glass was first made by the Venetians, and that they supplied Europe till nearly the end of the seventeenth century: and he noticed the manner in which Colbert assisted in establishing a manufactory for plate glass at Cherburg, in 1664, and that in 1668 the French produced plates 84 by 50 inches.

In 1673, Villiers, Duke of Buckingham, established some Venetians in the manufacture of plate glass at Lambeth, and this afterwards led to the formation of the British Plate Glass and other Companies. The injurious effects of different restrictive duties and excise regulations at the respective periods of change therein were also explained.

The process of enamelling was illustrated, also a peculiar property in the coarse bottle-glass, by which when brought a second time to a red heat it will bear to be thrown into cold water, without change of form; a knowledge of this fact may possibly lead to a method of soldering joints in its application as water-pipes, which has been recently spoken of.

Malleable glass and glass produced from the bones of skeletons and formed into a commemorative statue were incidentally noticed. Specimens of some continental glass, not at present equalled or produced by our manufacturers, were shewn, and conjectures offered as to the processes adopted in their formation.

The *Mercure Ségusien* speaks of a marvellous invention which has come to light within the walls of Saint-Etienne—the production of a sort of glass as malleable when cold as while red-hot. The *Moniteur des Arts* says, in reporting it:—

"This new metal, which ere long will be of more value than gold, and which the inventor has called *Silicon*, is of a white colour, very sonorous, and as brilliant and transparent as crystal. It can be obtained, with equal ease, opaque or coloured; combines with various substances, and some of these combinations produce shades of extraordinary beauty. It is without smell—very ductile, very malleable; and neither air nor acids affect it. It can be blown like glass, melted, or stretched out into long threads of perfect regularity. It is very hard, very tough, and possesses the qualities of molten steel in the very highest degree, without requiring to be tempered by the existing process, which, as is well known, offers no certainty—while the result of the new method is sure." * * A variety of objects have been manufactured with this silicon; which are about to be submitted to public exhibition on the Place of the Hotel de Ville, at Saint-Etienne.

DECORATION OF THE NEW HOUSES.—Mr. Herbert, A.R.A., has received a commission for the Hall of Poets. Mr. Dyce has been commissioned to execute a work for the House of Lords.

RESTORATION OF ETON COLLEGE CHAPEL.

WE mentioned some time since that a limited competition was going on for the commission to restore and decorate this chapel. The roof, amongst other things, is understood to be constructively so defective, as to render alteration absolutely necessary. The competitors were five in number, and Mr. Shaw, Mr. Benjamin Ferrey, and Mr. Nesfield were appointed to select and recommend the best plan. They met on Monday last, and after due consideration pronounced unanimously in favour of the design submitted by Mr. Deason.

Mr. Ferrey was originally included in the list of competitors, but declined sending in.

A second portion of stained glass has just been placed in the large altar window. The whole of the three compartments are now filled with the Crucifixion and Resurrection; the twelve apostles are to occupy the remaining lights. Painted glass is in progress for the two side windows next the altar. The whole of the interior of the chapel will no doubt be highly decorated.

THE PILE DRIVING MACHINE.

The *Devonport Telegraph* has the following notice of the application at Morice Town of the invention which we described in a recent number.

The application of steam power to the purposes of pile driving, which the extremely ingenious, but at the same time simple invention of Mr. J. Nasmyth has secured, renders what was the most tedious and laborious portion of works on the sea-shore the most commonplace; and, in its application at the new works at Morice Town, we understand effects a saving of time equal to nearly two years, and in the amount of expense no less a sum than fifty thousand pounds. But for this invention the great sea wall would have had to be built in several compartments, as with the power before used it was found impossible to erect a coffer-dam of the required length strong enough to resist the force and immense weight of water without. The fears of the Admiralty and their engineers on this point were so strong, that they were with some difficulty overcome; hence the length of the delay in proceeding with the works, which at one time gave rise to reports of the site being abandoned by the Government; and not until the contractors offered bonds of indemnity, such as could not fail to convince Government of their great confidence in the plan proposed, was consent given to the required deviation from the specifications. The length of the great coffer-dam or sea-wall now forming will be upwards of 1,600 feet, and will be composed of a double row of piles, varying from 55 to 66 feet in length, and from 14 to 16 inches square, driven as closely together as possible, so as to form two vast impervious walls of timber, which will effectually exclude the sea during the period occupied in the excavation of the soil within, and the formation of the granite walls of the great steam dock. The dimensions of this coffer-dam are quite unprecedented, and its gigantic proportions have resulted from the high opinion of the powers and capabilities which Messrs. Baker and Son, the contractors, had formed of Mr. Nasmyth's invention before it had been put to the test of actual trial; and to these gentlemen too much praise cannot be given for the enterprising spirit which they exhibited in this matter, and we sincerely trust they will reap the most substantial advantages as their reward, in being the first to introduce so important a machine to the notice of the world. There are two features which most remarkably distinguish this important invention from all pile-driving machines. These consist, in the first place, in the direct manner in which the elastic power of the steam is employed to lift up the mass of iron by whose fall on the head of the pile it is driven into the ground; and, secondly, in the peculiar manner in which the block of iron and its guide, case, and cylinder, are made to sit, as it were, on the shoulders of the pile, so as to predispose and assist it in its descent into the ground. In this manner the entire dead weight of this part of the apparatus is rendered available, and made to act in a most important degree as a portion of the pile-driving agency; and as the entire part of the appparatus follows the pile down, it never ceases for one instant to yield a most important assistance towards the attainment of the desired object. The energy and rapidity of the blows, which are dealt out on the head of the pile at the rate of upwards of seventy per minute! is such that, assisted by the dead weight of the apparatus sitting on the shoulders of the pile, it is seen to sink into the ground in steps, varying from 6 feet to 3 inches per stroke, the whole operation of driving the pile, 60 feet in length, occupying little more than from two and a half to four minutes; in fact, such is the ease and rapidity with which these enormous piles are driven into the ground by this powerful machine when compared with the old system, that the spectator is as much inclined to laugh at the ridiculous contrast, as to be astonished at its vast powers and the perfect control under which it is placed. The whole movements are governed by one handle, regulating the supply of steam from the boiler to the cylinder and piston, which yields the requisite rising and falling motion of the monkey or hammer that drives the pile. We were particularly attracted by the simple and efficient contrivance which Mr. Nasmyth has adopted for carrying the steam from the boiler to the cylinder on the head of the pile, namely, by wrought-iron jointed pipes, which fold up in the most beautiful manner in a succession of joints or lengths, so as to accommodate the length of steam at all the various heights of the apparatus, which having to descend through a perpendicular space of upwards of 50 feet, in following down the sinking pile, double up or fold together in the most perfect yet simple manner. The same boiler which supplies steam to the actual pile-driving apparatus, likewise affords steam to a small engine which is employed to give the requisite locomotive action to the whole apparatus in either direction, so as to cause it to move from pile to pile. This same small engine "hoists and pitches" the piles in the most perfect manner, also raises the pile-driving apparatus to the head of the highest pile, some of which are 66 feet in height, and places it on the shoulders of the pile with the utmost ease and exactness. Some idea of the performance of this machine may be formed, when we state that it drives a pile of 66 feet in length in four minutes, while with the ordinary machines upwards of fifteen or twenty hours would be occupied in doing the same work; to say nothing of the entire absence of all damage to the head of the pile, which, in the case of the employment of Mr. Nasmyth's machine, is not in the slightest degree injured, while driving such a pile by the ordinary machine the head of the pile is so shattered and split by the repetition of its destructive and ineffective blows, as to require to be cut off and reheaded several times during the operation. Practical pile drivers will have some idea of the remarkable superiority in the action of Mr. Nasmyth's machine, when we inform them that the iron hoop, hitherto employed to preserve the head of the pile from being split into matches, in the steam pile-driver is entirely dispensed with, and the heads of the piles, after driving, bear scarcely any evidence of force having been applied to them. It is almost impossible to form a notion of the vast and important results which will issue from this new and powerful agent in the construction of great marine works, harbours of refuge, piers, embankments for the recovering of land, timber embankments for railways, and a vast number of other important works, which will now be as easy of execution as the most ordinary of undertakings; and the most extensive and tedious of processes be reduced to one of the most simple and rapid of operations.

BURNING GLASSES EXTRAORDINARY.—On Sunday week, Mr. Morgan, draper, of Abergavenny, on going to his counting-house was surprised at smoke arising from a bale of shawls, of first-rate quality, which had just arrived. The skylight of the room is composed of panes of glass, the centres of some of which present that protuberance, technically denominated "bull's eyes;" these forming a focus, concentrated the rays of the sun, and the consequence was, that a large and unseemly hole was burned through the pile of shawls, whereby considerable damage was sustained; fortunately the goods were insured. — *Merlin.*

EXAMINATION IN LINES AND CURVES.*

17. What is a parabola, and in what does it differ from the hyperbola? Give the description of the difference in words that an artist can understand.

18. Point out examples of applications of the parabolic form in architecture.

19. How are the terms convex and concave applied to lines?

20. What is a point of contrary flexure in a curve? and point out instances of different forms of inflected lines used in architecture.

21. What is a cusp of a curve or line, and what are their different varieties and modes of tracing them, or lines having them?

22. What is a node of a curve or line, and what are their different forms, and the simple means by which they may be traced? and shew also how parts or the whole of different nodes may be applied in architecture.

23. What is a waved curve or line, and what are their different varieties? Point out instances of their application in architecture.

24. Shew how by continuous motion a wave line may be drawn, having the quickest part of each convexity, and the quickest part of the concavity, of the same degree of curvature.

25. Shew how by continuous motion a gradation of waved lines may be drawn between a given form of a deep wave and a shallow one, and shew when such means would be useful in architecture.

26. Shew another example of a wave line when the curvature of the quickest part of one convexity is large, the quickest part of the concavity is less, and the quickest part of the next convexity still less.

27. What is a spiral line, and what are their different varieties? JOS. JOPLING.

STIMULANTS FOR ARCHITECTURAL STUDENTS.

THE Society of Arts offer their gold medallion for the best original design for a national edifice for the reception of monuments, statues, and busts of eminent public men deceased, with galleries to contain pictures commemorative of their deeds. The building to be designed in a classical style of architecture, and to be supposed to be placed on an eminence in the vicinity of London, as, for instance, Primrose Hill. The drawings to consist of a plan, elevation, and a transverse and longitudinal section to a scale of three-quarters of an inch to 10 feet, and a perspective view. Also a gold medallion for the best design for a hemispherical timber-roof, circular base plan 100 feet diameter; framed to admit of an aperture for light, in the centre, of 25 feet diameter. The quantity of timber to be specified in cubic feet, and likewise the weight of wrought and cast iron respectively. The design to consist of a plan and section, with such parts shewn as large as may be necessary to fully explain the mode of construction, and to be accompanied by a model of one quarter of the roof to a scale of not less than three-eighths of an inch to a foot. The model and drawings to be sent in on or before the third Tuesday in January, 1846; and, if rewarded, to become the property of the society.

They further offer rewards for

1. Any improvement in the construction, drainage, or ventilation of barns, stables, and other farm-buildings, or in the arrangement of a farm-yard, or in the construction and hanging of gates.

2. For the best method of constructing economical and durable fencing for agricultural puposes, particularly as relates to the preservation of posts and other timbers inserted in the ground.

3. For any improvement in the method of building, heating, ventilating, and managing hot-houses, conservatories, or other constructions for similar purposes.

TENNIEL'S CARTOON. — We are glad to learn that the coloured sketch exhibited by Mr. Tenniel in Westminster Hall, to which in our review of the cartoons much commendation was awarded, has been purchased for 100 guineas by Mr. Lewis Pocock, F.S.A., the able honorary secretary to the Art-Union of London.

* See page 340 *ante*.

DOMESTIC CHAPELS.

THE retention of domestic chapels was one of the last vestiges of old piety to yield to modern indifference. The custom of attaching chapels to mansions of commanding dignity survived even the shock of the outbreak of 1688: nay in the palaces of Blenheim and Chatsworth, built by two of the chief actors in that scene, they are to be found; while, to quote a still later case, when during the last century a modern dwelling was reared within the walls of Warwick Castle, the chapel was not forgotten. Such chapels of course are quoted not as models, but as instances. It was reserved for another generation utterly to alienate private pomp from gratitude to The Giver of all good things. Now, as may be supposed, people are again beginning to require them, and we may be reasonably accused of neglect for not having sooner treated on the subject.

Regarding the stile of the chapel, if the house be of any period of pointed architecture, or if it be of that no-stile so frequent in our rural abodes, there will, we trust, be little doubt that the only style in which it can possibly be built is the middle pointed. If, however, the chapel have to be attached to an Italian villa, there is less unreasonableness in questioning whether or not it should correspond with the style of the mansion to which it is to be adjoined. But we have no doubt as to what ought to be done. We should say to the proprietor: boldly acknowledge the former mistake, and let your chapel at least be in correct style, and the first fruits of your amended taste. (*) It is no part of our office to recommend second-best courses, and therefore we shall say no more about style. Ancient canons forbid the placing of living apartments *over* a consecrated building, and reverence would equally counsel against their standing under them, when, as in the case of a country house, there is no lack of surrounding space to occupy. Therefore our chapel must be detached from the adjoining buildings, and if possible should be further separated from the rest of the house by a sort of cloister; and the chaplain's apartment too (which may be adapted to serve also as a sacristy) should rather range with the sacred building, than be merely one or two rooms of the secular portion of the house; if, that is, it be intended that he should not degenerate into a carpet-parson,—a risk very possible,—one which has innumerable times occurred, and should in every legitimate way be avoided.

Domestic chapels form, just as much as cathedrals, parish churches, college chapels, cemetery chapels, a distinct genus of places of worship, and like other genera have their own peculiar rules, to be deduced from the nature of the case, to govern their construction and arrangement. At first sight it might be imagined that the college chapels would be a safe guide to follow in their arrangement: there is, however, this cardinal difference between the two, that college chapels are for the use of a community in its nature religious, —domestic, for one in its nature lay. Thence it arises that the internal disposition of the one will be totally different from that of the other. College chapels, being for the sole use of a religious body, are all choir, the nave being reduced to the functions and dimensions of a mere ante-chapel. Domestic chapels, on the other hand, only require, as a general rule, the chancel of one priest, the congregation being disposed in the nave, and therefore the chancel should not bear a greater proportion to the nave than the one does to the other in a parish church. We do not here refer to episcopal chapels, which should be treated separately, but of which we may venture to assert that they bear, or should bear, considerable affinity to college chapels, and that therefore while accommodation is provided for the lay members of the household in the nave, ample room should be afforded in the stalls for the bishop and his clerks. Again, from the limited dimensions of the domestic chapel, coupled with the privacy which invests it as a place of family worship, it is unnecessary for the distinction between the nave and the chancel to be indicated by any external difference of size.

Externally the lofty roof should be crowned with a cross, and the whole architecture should be of an ornate cast. Internally the architect must be especially careful not to make the building toy-like, and a Lilliputian imitation of more vast religious structures. The desire of giving the greatest satisfaction to his patron, may not improbably make him incur the risk of doing this. For instance, the roof need not always be groined. On the other hand, he should be still more careful to admit nothing that was not, in proportion to the means of the householder, very costly. The chapel should always be the richest apartment in the house, and this in these days of exceeding luxury is not saying a little.

The chancel, which should be raised at least a step, will of course be screened off from the nave, and contain all the requisite furniture, including stalls for such clerks as may from time to time be inmates of the house.

The ancient distinction of the sexes should be invariably maintained in the arrangement of the nave, the men occupying the south, and the women the north side. The chapel of Haddon Hall has aisles to the nave, of which the north is very narrow and unoccupied, but the south still retains its open seats. This chapel is in itself very picturesque, but we should not recommend it as a model; it is far too like a parish church in miniature. Aisles are both cumbersome and unnecessary in domestic chapels.

The nave will contain both lettern and litany-stool; on *no account* however a font. As an article of general use a font is unnecessary in a private chapel, as an ornament worse than meaningless, as a provision for cases of emergency a dangerous temptation.

The entrance, if possible, should be either on the north or south side, and as we have before said, from a sort of cloister. The arrangement of the belfry, and its nature, must depend upon circumstances. We need not say that orientation must be attended to.—*Ecclesiologist, New Series.*

IRON AND THE IRON TRADE.

A VERY important improvement in the manufacture of iron has been made by a Mr. Green, of New Jersey, effecting a saving in labour and material of 33 per cent. The process is a modification of Mr. Clay's patent for the production of iron direct from the ore by the use of anthracite, and is as follows:—six tons of pulverised iron ore are mixed with two tons of anthracite coal dust, and the whole poured in at the top of a reverberatory furnace upon the slag bed below; it is then to be worked into a loose granulated mass, and pushed to the furthest end of the hearth: four tons of cast pig-iron are then to be introduced, and, when at a white heat, it is to be heaped on the already half fused ore, and worked up into balls, to be treated in the same way as if the whole were pig metal. It is expected the process will enable every furnace to double its make, and, of course to render the metal much cheaper.

At the late meeting of the British Association, at Cambridge, Mr. Watt read a report on the Iron Trade in Scotland, from which it appears that at the present moment there are extensive new iron-works erecting in Scotland, especially in Ayrshire and in Renfrewshire. At several of the old works considerable additions are being made to the number of furnaces now at work. The increase in the annual quantity of pig iron smelted in that country in April, 1845, amounts to 37·4 per cent. And there is every appearance that before another year expires, a similar increase will be made in the amount of iron produced in Scotland.

Sir J. Guest, of Dowlar's Works, in evidence before the Import Duties Committee, 1840, stated that—

The iron made at the beginning of this century amounted to....	150,000 tons.
In 1806	258,000 ,,
In 1823	452,000 ,,
In 1825	581,000 ,,
In 1828	703,000 ,,
In 1835	1,000,000 ,,
In 1836	1,200,000 ,,
In 1840	1,500,000 ,,

Mr. Jessop, of the Butterley Works, estimated the annual produce in Great Britain, exclusive of Ireland in 1840, at 1,396,400 tons, and the quantity of coal used for smelting that quantity was 4,877,000 tons, besides 2,000,000 tons for converting into wrought-iron.

CARVED STAIRCASE, BELSIZE HOUSE, HAMPSTEAD.

CARVED STAIRCASE, BELSIZE HOUSE, HAMPSTEAD.

The richly-carved staircase still remaining in the old portion of Belsize House, Hampstead, is well deserving a careful inspection; it is a more elaborate, but certainly not so elegant a specimen as the one by Inigo Jones, given in a former number of the Builder;* but this staircase is of late date, either that of the reign of James II. or the one following, when the architecture of the day was overflowing with heavy and senseless ornament. Belsize House was at that time in the possession of the Earl of Chesterfield, and we can imagine that the greater portion of the old building having been pulled down, some new parts and rich decorations were added to it by that nobleman. The staircase is of considerable size; there are four large compartments, of which the print shews the first on the ground floor, and four smaller ones: the whole of these are varied in design, and the carving perfect on both sides. The effect of it at present is rather injured by being painted to imitate bronze.

Belsize House was, a century back, a celebrated and rather depraved place of amusement, the accounts respecting it are very curious. It was necessary for the protection of its visitors to have first twelve and afterwards twenty stout fellows compleatly arm'd, to patrole betwixt London and Belsize, to prevent the insults of highwaymen or footpads, which may infest the road." A comic poem of the date 1722 declares—

> ——"that thirty men shall be
> Upon the road for their security:
> But whether one-half of this rabble-guard,
> (Whilst t'other half 's asleep on watch and ward,)
> Dont rob the people they pretend to save,
> I to the opinion of the reader leave."

Full accounts of this place will be found in Lyson's "Environs" second volume, in Park's "Topography of Hampstead," or in the fourth volume of the "Pictorial History of England;" the latter work gives a representation of the front of the house, copied from a very rare print. C. J. Richardson.

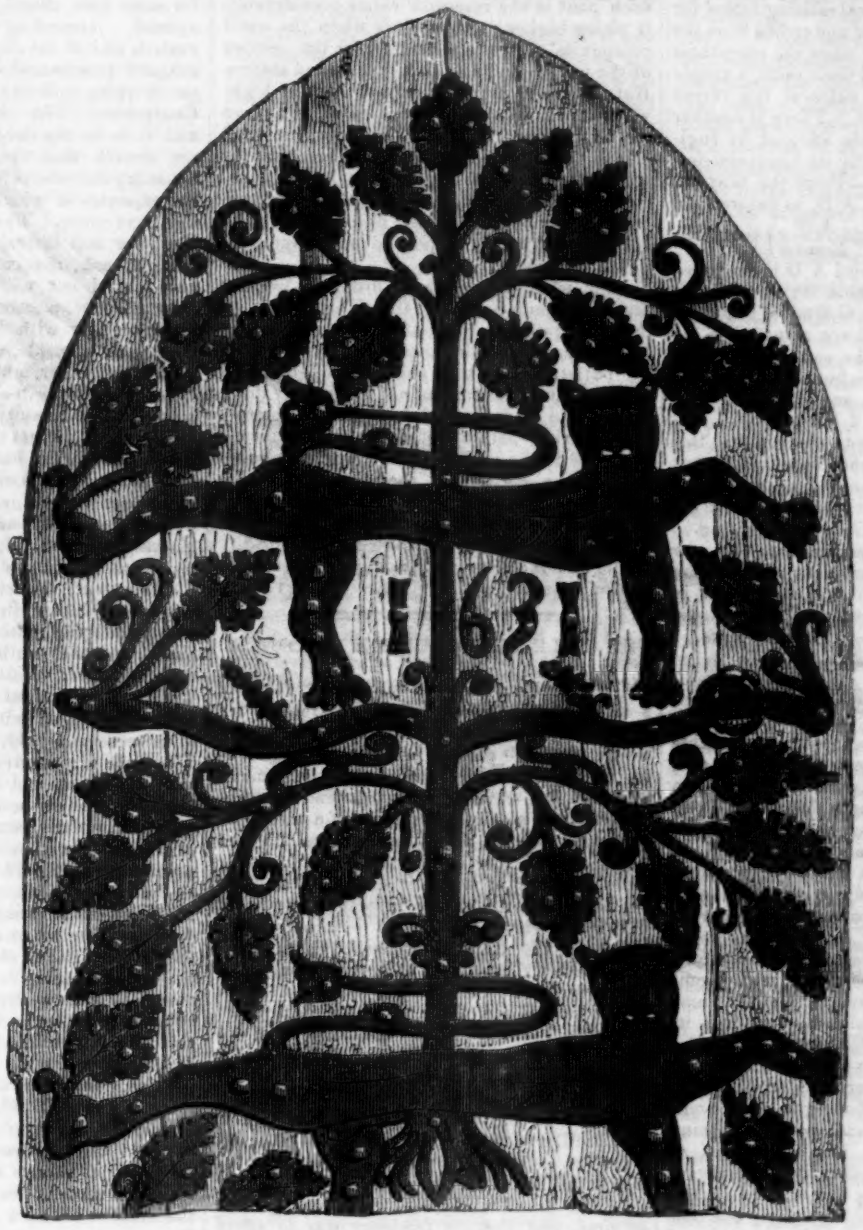
* See Vol. II. p. 554.

PROPOSED NEW UNIVERSITY OF LONDON.

In consequence of the great increase in the number of candidates for matriculation in the University of London this year, the chambers of the University at Somerset House not being sufficiently spacious to accommodate the whole of them, the principal of King's College, on being applied to, placed one of the lecture-rooms of that institution at the disposal of the senate during the examination. This want of room shews the necessity, and suggests the propriety, of erecting a structure, that shall be ornamental to the first city of the empire, worthy of the age in which we live, and suitable to the present and future wants of a Metropolitan University. The editor of the *Morning Chronicle* has recently penned a few remarks on the subject. He says: "The present 'apartments' have become ludicrously insufficient for the purposes for which they are required. What must be the impression on the mind of a stranger (drawing his idea of the appearance of an English university from the noble piles of building which adorn our ancient seats of learning) when he asks for the University of London, and is directed to a staircase (which he of course takes for the porter's-lodge)—and, on entering, sees written up in large characters, 'University of London on the second floor!' The second floor might indeed do well enough for the cradle of the University; but seeing that this institution is no longer an infant, but now in the eighth year of its age—that it is already fed by twenty-five colleges, and threatens to become a very giant in stature,—it does seem but common justice to give it room enough to stretch its limbs in. It has been 'cabin'd, cribb'd, confin'd' long enough. It ought to have a proper 'local habitation' now that it has acquired a 'name.' And, seriously, now that the legislature are providing so handsomely for the Irish colleges, we think that something ought to be done for the benefit of colleges in England."

NEWSPAPER
BUILDER

ANCIENT IRON-WORK, DARTMOUTH CHURCH, DEVONSHIRE.



IRON-WORK TO DOOR OF DARTMOUTH CHURCH, DEVONSHIRE.

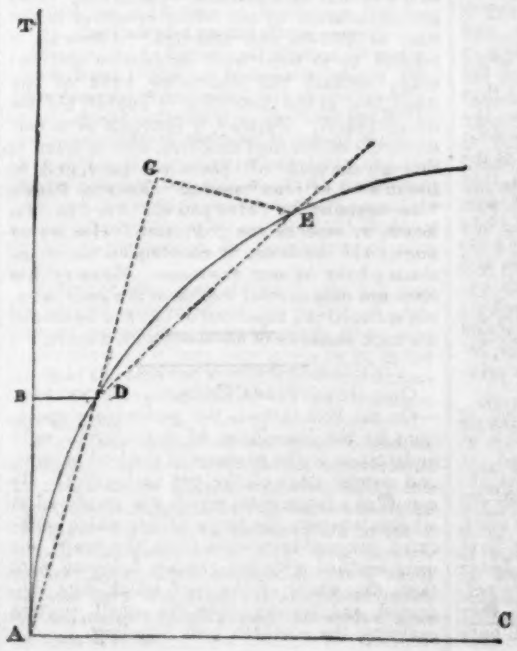
Considerable taste and skill in ancient times were displayed in all kinds of iron-work; this has been already most efficiently pointed out in these pages. The subject represented above, is a striking example of the boldness of ancient designers and workmen, and such that is indeed calculated to make their modern representatives stare. The style of the iron-work on the door at Dartmouth Church, is that of the reign of Edward III. The date, which appears 1631, is a puzzle; it either proves that in some parts of the country the different styles lingered for a considerable period longer than we now please to allow, or it proves that the iron-work belonged to an older door, and was brought there in that year. This latter supposition is the more likely to be correct, as it appears imperfect towards the lower portion, as if it had been made for a taller door; the style of the church is that of the reign of Edward III.

C. J. Richardson.

SETTING OUT CURVES ON RAILWAYS.

Your correspondent, "Amateur," in a recent number (June 14) of The Builder, requested to be furnished with a method for setting out curves on railways. In the absence of any answer being yet afforded to his inquiry, I venture to give the one I have usually adopted, and which in practice I have found to be simple and expeditious.

It is obvious that from the great radii of railway curves in general it would be impossible to strike them as in the usual manner, from a fixed centre. But the known relation between the sine and versed sine of an arc affords a ready means of effecting the same object.



For instance, in the annexed diagram, let A be the point whence the curve is proposed to commence with a radius, A C, of 60 or 80 chains, as the case may be. From the point A set off on the ground any convenient distance A T, of say 10 chains, marking each chain in its length. Then at the point B, the end of the first chain, set off B D at right angles to A B. Now if the ordinate B D be taken equal to the versed sine of an arc of a circle of the given radius, with a sine of one chain D, is the locus. of the curve to be described at that point. The formula for calculating the value of B D is of easy application, being always equal to radius $-\sqrt{\text{rad.}^2 - \text{sin.}^2}$; and the same process will apply to any other required point in the curve, merely substituting the value of sin^2 in the expression, as the distances in the tangent, A T, increase from the point A. It is advisable, more particularly in uneven ground or where the space is confined, to recommence the operation at about every 8 or 10 chains, which is effected by setting out a new tangent to the curve. This may be done by joining the last ascertained point to the next but one from it in the curve, viz., that cor-

responding to the ordinate on the tangent at two chains back. Then a line ranged forward parallel to this chord, and touching the curve at the middle point, will be the tangent required.

The above method will be found convenient, as it affords a facility for calculating tables for the versed sine of an arc of any radius from the one already obtained; for since the curvatures of circles vary inversely as their radii, a simple proportion will give the value of the versed sine of any other required. There is another method which is sometimes adopted by engineers, and recommended by its apparent simplicity, it is as follows:—Upon the tangent, A T, is taken any length, A D, as before; and from B is set off B D $\left(=\frac{A B^2}{\text{diameter}}\right)$ perpendicular to A T, then the chord A D is produced to G, making D G equal to A B; and from G is drawn the perpendicular G E equal to 2 B D, whence the points A D E are assumed to be in the circumference of the same circle, and other consecutive points are found by producing the chord D E as before, and setting off perpendiculars each equal to 2 B D.

It is scarcely necessary to observe that this method is not only erroneous in principle, but the curve so obtained is not a segment of a circular arc, but, on the contrary, one where the radius of curvature is continually increasing.

In the *Mechanics' Magazine*, No. 801, for December 15th, 1838, I gave an investigation of the principle, wherein it was shewn that in arcs of small radii the error would be serious.

G. Hawkins.

IMPROVEMENT OF THE KING'S SCHOLARS' POND SEWER.

Having frequently observed considerable quantities of sewerage matter, as also silt, sand, stones, and other substances, lying upon the channel of the King's Scholars' Pond Sewer, between the outlet next the Thames, and Elliott's Brewery, at Pimlico, and as this accumulation creates not only an abominable nuisance to this improving neighbourhood, but also cost a considerable sum of money during each year in removing it, I beg to suggest a simple method by which very much of the nuisance so frequently complained of may be obviated, and at the same time the great expense which now attends its removal may be entirely done away with. But in the first place I will explain how these deposits and accumulations are produced.

There are two pairs of flood-gates at the outlet, which is 18 feet wide, one pair being scarcely or never used, but is intended to supply the place of the other should this ever get out of order. At every flux of the tide, and when it rises to the *sill* of the outlet, one pair of these gates is closed for the purpose of preventing the river-water from flowing into the sewer, which is by this means formed into a simple reservoir, and retains the whole of the sewerage matter, &c., that flows into it, from the time the gates are shut, till they are again opened, this being from four to five hours during every tide. Now as the sewerage-water accumulates or rises in the reservoir, the animal and vegetable refuse, and other substances, which are carried along in suspension by the velocity and action of the descending water, are thrown down, and thus become deposited and accumulated upon the channel; these substances being for the most part of greater specific gravity than that of the water; and, therefore, when it is still they settle and subside to the bottom. The gradient all along this portion of the sewer being very little, the water flowing down it here soon increases in height, and thus the action and force of the stream becomes very much expended at a considerable distance up the sewer; the lighter particles of matter being carried forward, while the more bulky and heavier, become deposited where the water loses its principal velocity.

Had scientific and proper principles of drainage been observed when this portion of the sewer was arranged and constructed, at least 5 feet more fall could have been given to it, so as to have brought the discharging sill of the outlet somewhat under low-water mark in the river, and which would not only have greatly improved the drainage of the lower portion of Westminster, by allowing the collateral sewers a greater gradient than they now have, but the increased fall would have imparted such an amount of velocity and action to the descending stream at this part as would have prevented the deposition of matter, and consequently would have carried it direct into the Thames. The height of the water at each pent in the reservoir varies considerably, it rising higher on those days when the water companies' mains are charged for the service of the public, and also during rains and storms. But it scarcely or never rises so high as high-water mark outside the flood-gates, and when the tide recedes to, or a little below, the level of the accumulated water in the reservoir or sewer, the gates are forced open by the superior pressure inside, and thus the water gradually and slowly sinks and flows out with the ebb tide, leaving the deposited matter upon the bed of the sewer.

Now what I propose in order to prevent these accumulations for the future is this: that the gates at the outlet be kept closed during each ebb tide, *until it leaves the sill* of the outlet. Then they should be opened and the descent of the current not having any thing opposed to it, such a high degree of velocity and scouring action would be by this means imparted to the stream, that it would raise up and carry along with it the substances which were deposited during the time the water was accumulating in the reservoir, and thus much of the stench which now infects this locality would be done away with, and great expense to the public saved also.

An Observer.

THE GILLESPIE MONUMENT IN COMBER.

On the 24th ultimo the monument recently erected to the memory of Major-General Sir Robert Gillespie, was publicly opened, upwards of 25,000 persons being present, including the members of 119 masonic lodges, many of whom had travelled miles to attend the ceremony. The monument consists of a well-proportioned square pillar and pedestal 55 feet high, divided into compartments on the four faces, on each of which is sculptured a representation of one of the principal scenes of Gillespie's career; and it is terminated by a statue of the General himself, holding his sword in his right hand. Gillespie having been distinguished as a freemason, the south side of the pedestal is sculptured with masonic devices. "Brother" Johnston, the architect, received much praise for the manner in which he had carried out the intention of the committee. The proceedings took a masonic character, and one of the speakers, Alexander Grant, Esq., of Derry, made some lengthened observations on the value and purpose of the institution. He remarked especially on the manner in which it had withstood the destroying hand of time, and that its tendency was to effect good. "As Masons," said he, "we consider the entrance of a candidate into our order as typical of the entrance of all men on this their mortal existence. It inculcates the useful lesson of natural equality and mutual dependence—it instructs us in the universal principles of beneficence and charity, to seek the solace of our own distress, by affording relief and consolation to our fellow-creatures in the hour of distress and affliction. Above all, it teaches us to bend with resignation and humility beneath the chastening hand of the Almighty, at the same time to engraft his law in our hearts. Further, it instructs us to cultivate the intellectual faculties, and to trace it through the paths of heavenly science, even to the throne of Omnipotence. To our minds, thus modelled by virtue and science, masonry, however, teaches one great and useful lesson more; she leads us, by contemplation, to the closing hour of our existence. Masonry has been not only mental wealth to the poor man, but softened the asperities of life and lightened the dark shadows of adversity with a smile."

Old Greyfriars' Church, Edinburgh.—On the 10th instant, the preliminary operations for the demolition of this church were undertaken in the presence of the lord provost, and several other of the city authorities. By means of a large beam which was employed as a battering-ram, the large pillars which separated the southern aisle from the main one were levelled with the ground, bringing with them the whole of the roof which they supported, and leaving only the small portion covering the northern aisle standing.

ST. WILFRID'S ROMAN CATHOLIC CHAPEL, HULME.

A fortnight ago, the anniversary of St. Peter and St. Paul, the chancel of St. Wilfrid's, Bedford-street, Hulme—which had been for some time closed for decoration—was re-opened. According to a local paper the eastern end of the church has a spacious chancel, and two lateral chapels, one dedicated to the Virgin, and the other to St. Thomas of Canterbury. The chancel is between these; and it is to the decoration of this portion of the church that the congregation has been directing its efforts; and to aid in defraying the expenses of which, the collections of the day were made. The chancel is divided from the nave and lateral chapels by open screen-work of oak, the cusps and mouldings gilded and picked out with crimson. The screen next the nave is surrounded with a large rood or crucifix, with figures of the Virgin-mother on one side, and St. John the Evangelist on the other, and on either side of these, three massive gilt standards bearing large wax lights. The chancel is of large dimensions, about 25 feet square, with an open timbered roof. To ensure the stability of the work, this, from rooftree to floor, has received five or six coats of oil-paint, upon which the decorative work has been done, forming one glowing mass of gold and colour; and in design and execution it is described as being, for its extent, the richest specimen of polychromic painting in England. The eastern end is adorned with four windows of stained glass, and the south side with one, all executed by Mr. Wailes, of Newcastle-upon-Tyne. The roof of the chancel is of azure, thickly sprinkled with gold stars; the rafters of crimson and gold, with rosettes and scrolls. The walls are covered with a simple diapering of blue, white, and red, down to the level of the rere-dos (or screen at the back of the altar), when the pattern increases in intricacy of design, richness of colour, and the more profuse use of gold. At the extreme height of the eastern gable, on a gold ground enclosed in the mystical *vesica piscis*, is the figure of the Lamb, and below, in round medallions, are two angels in attitudes of adoration, clad in white robes, and bearing tapers. At the same level, along the side walls, are five other angels in robes of gold and crimson, bearing labels inscribed with sentences from the hymn, "*Gloria in Excelsis Deo.*" On either side of the eastern window is a large full-length figure, one of St. Wilfrid, in whose honour the church is dedicated; and the other of St. Edward the Confessor. The upper part of the rere-dos has shields alternately bearing the family cognizance of St. Wilfrid, and the arms of the diocese of York, of which he was bishop. Beneath these again are seven medallions containing the heads of as many Anglo-Saxon bishops. The corbeils are of crimson, with the emblem of our Lord's passion and death blazoned in gold; the reveals of the windows and arches are of a rich pattern; the mouldings of the arches, piscina and sedilia, the pillars of the reredos, and of the altar, are of burnished gold, which, mingling with, heightening, and relieving the rich profusion of colour with which the whole abounds, produces a gorgeous *coup d'œil*. The design was furnished by Mr. Welby Pugin, and executed by Mr. William Boardman, of Manchester; the heads and figures being painted by Mr. Keeling, of Manchester. No cost appears to have been spared upon the work.

St. James's Church, Norland, Notting-Hill.—This edifice was consecrated last week by the Bishop of London, but at present it is minus the steeple, a deficiency which necessarily detracts from its appearance. A subscription is, however on foot, to enable the trustees to erect the steeple; and as the sum of only 250*l.* is wanting, it is expected that the object will be speedily accomplished. The seats, which are constructed very low, will accommodate 750 persons, and one half of them are free.

Fine Arts in Egypt.—We learn from Paris, that the Pacha of Egypt proposes to establish an academy of the fine arts in Cairo, and that a number of young men have been sent at his cost to Rome to study painting and sculpture there, with the view of acting as the first professors.

LONDON STONE.

"It is so sure a Stone that that is upon sette,
For though some have it thrette
With Menaces grym and grette,
Yet Hurte had it none:
Cryst is the very stone
That the Citie is set uppon,
Which frem al his Foone
Hath ever preserved yt."

So singeth Master Fabian, with more good will, belike, than harmony, and possibly among the several characters ascribed to this mysterious stone, whereof many have conjectured, but none professed to state precisely, the origin, that of a Christian monument, according to the old City chronicler, may have likewise appertained to it.

But it is to an earlier period that we are to carry our inquiries as to its original use and destination.

Wren, who had opportunities for practical investigation, which might have done much toward the knowledge of ancient London, in the hands of a better antiquary, found, in the immediate neighbourhood of this stone, such extensive remains of buildings, evidently Roman, as led him to assert, supposing it to be the milliarium or standard milestone, similar to that in the Forum at Rome, that it partook of a more extensive form, and appeared, in some degree, to have imitated the Milliarium Aurem, at Constantinople, which was not merely a pillar like that at Rome, but a roofed building.

Now, granting the roof, which is, indeed, a thing quite probable, we may suppose an edifice very much like an old market-cross. The goodly stone, of which but a morsel now survives, would form the central pillar; conceive this, surrounded by a platform with steps, and having a pent or roof, supported by a series of inferior columns, and you have a building of a Roman character, and withal the model, perchance, of those central crosses which date from a period as early, for aught that is known, as that of the Saxons, who learned the forms of architecture from their Roman predecessors. And now, good reader, you may set up statues of Fortune and Mercury, for we will conclude this not only to have been the point whence branched off the principal highways, but that it was likewise the place of eloquence, where proclamations were addressed to the populace. You may add, likewise, if it seemeth so to behove you, the statue of the Emperor Theodosius, in whose honour the name of the ancient city, Latinised into Longidinium, according to Antininous, or otherwise Londinum and Londinium, from the elements of its Celtic denomination, was for a time suspended, and that of Augusta bestowed upon it instead.

But — for we have begun somewhat before the beginning, so far as matter of surmise is concerned—let us now take an earlier view of this renowed city. Imagine we, then, a space cleared from the primeval forest. The various tribes of the early inhabitants living in a state of a predatory warfare, some natural defence was necessary to a people who had not learned the art of building walls, or constructing artificial bulwarks much more efficient than the stockade or fence of felled trees surrounding the village. The site of this primitive city is accordingly chosen so as to be protected on all sides: the Thames on the south, and on the north the marshes, afterwards known as Fensbury, were traversed by certain rivers running into the former, and forming the boundaries of the settlement.

A street of hovels runs east and west, leaving a space in the centre, and in this space stands a perpendicular mass of unhewn stone, even such as they of yore set up for worship and sacrifice in the East, and similar to the grey and solitary pillars which appear inthose waste moors of Cumberland and other parts of England, and furnish the untaught peasant with the theme of many a wild tale and fabulous legend. This particular stone, standing in the midst of Lon-dun or Llwn-thun, the unhewn altar of the Druidic hierarch, was then, gentle reader, upon the authority of, "it has been supposed," no other than the identical London Stone.

And, verily, it is a pleasant supposition; and let us only adopt it as such, and belike it will soon amount to a belief; and why should not the judicious antiquary have his pet weakness to cherish like a foundling, hugged all the more closely the more it is rejected of others? Marry, good friend, the thing is wholesome, and in this shrine will we lock up all our credulity. The Romans took, then, this venerated monument, and dedicated it to those tutelary deities who presided over the destinies of wayfarers, and all such as would propitiate the goddess Fortune.

Having made this declaration of faith, it now behoves us to descend from our altitudes, and betake us to some inquiry concerning what history sayeth touching this, our subject, and eke what tradition, which latter is but an unwritten history, and therefore unsophisticated, and oft-times nearer to the naked truth. Before the time of the Conquest, then, and that is a fair starting-point to begin with facts, thus sayeth worthy John Stowe:—"In the end of a faire written Gospell booke, given to Christ's Church, in Canterbury, by Ethelstane, king of the West Saxons, I finde noted of Lands or Rents in London, belonging to the said church, whereof one parcell is described to lye neere unto London Stone."

London Stone, be it said, stood not, of yore, in its present place, but on the other side of Watling-street, which was formerly one of the three great thoroughfares running east of Roman London. There was an open space where several streets met, and surrounding which were the markets which supplied the city with provision, such being the only legal markets according to a decree of Hammond Chickwell, in the reign of Edward II., which sets forth that "none should sell fish or flesh out of the following places, viz., Bridge-street, Eastcheap, Old Fish-street, St. Nicholas Shambles, and the Stocks-market," the latter so designated by virtue of the provision made there in order to chastise and expose all cheating huxters, and such cozening knaves as dealt not honestly in their wares, according to the law of the Pied Poudre Court. This was the region of good cheer, for here, said Lydgate,

"Pewter pots they clattered on a heap;
There was harp, pipe, and minstrelsy."

There were ribbes of beef rosted, and pies well baked, and, while the substantial and strong-flavoured meats were ever ready to appease the hunger of the churl, the more dainty and appetising vivers, such as spiced frumetye, carpe in foile, larks ingraylede, and many other toothsome refections, were forthcoming at the call of gallants from the patrician purlieus of St. Catherine's Tower Royal, and Baynard's Castle.

Nor was good sack lacking to boot, be thou witness, shade of fat Jack! but thou never could'st become a shade. Here revelled, if Will Shakspere speaketh sooth, hotheaded Prince Hal and his frolicksome playfellows. The atmosphere is still redolent of canaries, and the nose of Bardolph sheds a fiery splendour over the spot like the livid effulgence of a stormy sunset.

But the glory of Eastcheap is departed, the Boar's Head is no more, and they who would behold its former site may seek it well nigh, even at the feet of King William's statue.

In the Saxon times and downwards, ere London had a Bourse, or Exchange, the font of St. Paul's and London Stone seem to have been resorted to for the ratification of various transactions; and a promise to pay a debt upon London Stone appears to have imparted an additional solemnity to the obligation, by the nomination of the locality where it was to be fulfilled, the shadow of its early sanctity probably taking the colour of the successive religious changes it had witnessed, until it was finally invested with a degree of Christian reverence, according to the spirit of the times.

Moreover, its great antiquity, for few men are without something of the spirit of antiquarian veneration, however little they may be conscious of it, may have given to it, in the minds of the citizens, something of that importance which is supported by an indefinite superstition.

It had thus become in the eyes of men, as it were, in some sort, the foundation-stone of the city, even as Fabian suggests, being the oldest visible object there existing—a thing by which the city and its greatness were to stand or fall, wherefore, as it hath been recited, treaties were there ratified in good faith between man and man, proclamations made, and all matters relating to boundaries begun and ended there.

In the same spirit, that arch rebel, Jack Cade, when he entered London at the head of the Kentish insurrection, marched to this place, and, in the presence of a great concourse of people, struck his staff on London Stone, exclaiming, "Now is Mortimer lord of this city!" "And here, sitting upon this stone," &c., adds Shakspere, who wist somewhat of the gnostic meanings of things, thereby implying, that, although a more dignified orator would have stood upon the stone or the platform thereof, if such existed, the would-be Mortimer, inspired, forsooth, with the putting down kings and princes, must loll at his ease, while he addresses a swaggering oration to his quaking worship, the mayor, and issues this lordly ordinance,

"I will make it felony to drink small beer."

The last notices of this ancient and solemn monument appear in this wise: — "On the south side of this high street, near unto the Channell, is pitched upright a great stone, called London Stone, fixed in the ground very deepe, fastned with barres of iron, and otherwise so strongly set, that, if Cartes doe runne against it through negligence, the wheels be broken, and the stone itselfe unshaken." This is its appearance according to Stowe.

And now the latter days fell heavily upon the venerable relique, which was at length overthrown, and in a dark age, and by the sentence of wicked men, without awe or veneration, doomed to destruction, as a nuisance!

But at this crisis there arose a bold and goodly hero (upon whose memory be every honest antiquary's benison), by name Thomas Maiden, of Sherbourne-lane, printer. This worthy moved the authorities, even the parish officers, to its preservation, which act of righteousness was fulfilled in the year 1798, whereby London may be said, in a figurative sense, to continue standing upon its ancient foundation.

And now, worthy reader, having detailed for your instruction as much as is chronicled of London Stone, and, perchance, somewhat more, in the process of this discourse, behold it shifted, and degraded from its dignity and uses, even where it hides its diminished head, curiously enshrined in a case of freestone. It seemeth but a little bit of what would appear to have been of a goodly bulk formerly; but remember that the unsparing wheels of fifteen centuries, if not many more, have passed over it, and even still it may be bigger than you wot of, for though we peep thus at its venerable crown, which is somewhat greater than your head though by no means as large as the dome of St. Paul's, yet may there be much more below ground, and enough, perchance, to serve as a goodly bulwark to that part of the church wall against which it standeth.

In curiously surveying the site there will, likewise, be seen another object which partaketh somewhat of the spirit of the earlier time, yea, the days when labouring men might rest awhile on their wayfaring, under heavy burdens, ere it had been ordained that all things had to be done in breathless speed and haste. This is a porter's shelf, many of which are now removed, but which presented formerly numerous invitations to the weary, accompanied by certain sage admonitions to boot, daintily imprinted to this effect, "Don't forget your parcels." Underneath we may find, lazily prolonging his rest even unto the pitch of snoring, an unthrifty member of the fraternity of London porters, who has, mayhap, essayed to carry too much of his namesake, over and above the sufficient load upon the shelf, and now wots but little of things ancient and modern, nor even of the preservation of his shins in a populous thoroughfare.— *Illuminated Magazine.*

STIR IN THE SCHOOL OF DESIGN.—The papers which have appeared in our columns on the state of the School of Design have excited very lively interest, serving to shew that a large number of our readers consider it as it really is, a subject of considerable importance. We have now before us statements of an extraordinary character bearing upon it, but feeling the possibility of committing injustice, both correspondents and readers must pardon us for postponing the consideration of them for another week.

INFLUENCE OF NEWLY-BUILT HOUSES ON THE HEALTH OF THEIR OCCUPIERS.

Dr. Sutro, in a recent number of the *Medical Times*, draws attention to the intimate connection kept up between the external air and the human organization, through the medium of the skin and lungs, and then he refers to experience to shew the slow and dangerous diseases to which inhabitants of newly-built houses are exposed, and he considers it, therefore, to be the duty of the sanatory police to remove or check these evils, by means of decisive prohibitory measures. The normal composition of the air is changed in newly-built houses, and thus diseases are created:—1st. *by an increased proportion of water* in the atmosphere; (*a*) from the wooden materials, which may be too new and damp, and which, therefore, fill the inclosed spaces with humidity, from evaporation; (*b*) from the stone materials, of which burnt bricks contain and attract the smallest proportion of humidity—field-stones more—sand-stones, and those prepared from dried clay, most; (*c*) from the materials used for cementing the stones, and for colouring and varnishing the walls. The mortar used for cementing the stones, consists of hydrate of lime, which gradually loses its water, and hardens by attracting carbonic acid from the atmosphere. The walls of those houses remain damp longest which have been plastered immediately after their completion, because the dried lime forms an external layer very difficult of penetration. As accidental causes, which may render houses damp, it is necessary to mention wet weather when building, damp situations, large cellars, and enclosure by other high edifices, which prevent the free access of sun and wind. 2nd. *The proportion of carbonic acid in the air* is diminished by the mortar which attracts it from the air, as before mentioned; it may also be attracted by colours containing acetate of copper, in which case the acetic acid escapes. No direct injury would, however, be caused by the diminution of carbonic acid, as it belongs to the matters excreted by the skin and lungs. 3rd. *The following foreign substances are mixed with the air:*—(*a*) *particles of lime*, which have been proved beyond doubt to exist in the atmosphere of new habitations, being suspended by the evaporation of the moisture; (*b*) *evaporation* of oil and metallic colours. Combinations of lead, copper, and arsenic are employed in the preparation of painter's colours. Lead volatilizes at the increased temperature of the rooms, copper does not, but wherever arsenical colours have been used, the air may absorb arsenious acid, and arseniuretted hydrogen gas may be formed by combination with hydrogen; (*c*) different chemical evaporations of damp new wood, mould, fungi, and grasses, which arise and putrify in damp habitations. P. Frank has already directed attention to the mould with which the furniture of newly-built houses is covered, and to the constant moisture of the clothes and linen, from which circumstance alone influences injurious to the inhabitants may be expected; for on account of the increased humidity of the surrounding atmosphere, not only is the skin prevented from free transpiration; but it is even induced to attract more moisture. This is also the case with the lungs, and thus the composition of the blood is rendered abnormal, and hydræmia of the whole body is produced; this is shewn by a pale anœmic face, wasted muscles, decrease of strength, sluggishness of all the functions, difficult respiration, and soft small pulse, which symptoms frequently terminate in external or internal dropsy. In other cases, protracted rheumatisms, articular inflammations, contractions or paralyses, are produced. In addition, the sojourn in a damp atmosphere is a frequent cause of the development of scrofula, intermittent and typhoid fevers, scurvy, quinsy, croup, pulmonary gangrene, puerperal fever, &c. Wounds and ulcers easily assume an unhealthy appearance, and have a tendency to take on gangrenous inflammation. The evaporation from organic substances favours the production of miasmata and contagions, for in no situations did the cholera occur more frequently, than in new, damp habitations. The inspiration of lime particles may predispose to diseases of the chest, or apoplexy. There can be no doubt, that the lead employed in painting the walls, evaporating at a higher temperature, may produce in those who are constantly exposed to its injurious exhalations, symptoms of chronic poisoning, disturbed digestion, colic, or paralysis, but this may be less feared from paints coloured by acetate of copper, inasmuch as it does not volatilize, and could, perhaps, at most by attracting carbonic acid, allow its acetic acid to escape. Chronic poisoning by arsenic may be produced by being exposed to the evaporation of Scheele's or Schweinfurt's green, from which arseniuretted hydrogen and arsenious acid often escape for a long time. Lastly, the constant moisture of the clothes and beds, and the frequent effect on the food causes certain injurious consequences on the constitutions of the inhabitants. Since then the early occupation of newly-built houses and recently plastered rooms cause so many diseases, and impart to children the germs of prolonged sickness and misery, it becomes the duty of the state to prevent these evils by all possible means. In order to guard against the perils and injuries enumerated, the author considers the following measures to be necessary. 1° Official examination of the materials before the commencement of the building, the enforcement of proper arrangements as regards the building itself. Thus, in public contracts for any building, to be erected in summer, the condition ought to be made, that the materials should be procured and dried during the preceding winter, and the term of completing any edifice should always be regulated according to the weather. Lead and arsenical colours for painting the walls should be entirely forbidden. 2° A house should not be inhabited before a fixed time after its completion had elapsed. Some authors think a year should be the period fixed. Considering the different effects of different localities, a house in town should remain uninhabited for a year, and in the country, where sun and air have free access, for half a year, after it has been finished. Should any house be dried before the time appointed, the proprietor might request the sanatory commission to examine it, when, if sufficiently dry, it might be inhabited. 3° A commission should be appointed for the purpose of examining every newly-built house, and testifying to its soundness before it is inhabited. Austria presents evidence of the feasibility of such an arrangement. 4° Instruction of the people as regards the injuries caused by inhabiting newly-built houses, &c., and as regards the means to be taken for the purpose of counteracting these injuries. The above commission not being generally introduced, nor put in force in cases of repairing, painting, &c., people ought to know to what diseases they are liable by exposing themselves to such injurious evaporation, and if compelled by circumstances to submit, they ought to use the following precautions:—first, drying should not be confined to one room, but to all the adjoining rooms. Mould, fungi, &c., should be rubbed and washed off with the greatest care. Fires of dry brushwood should be frequently lighted, and the windows should be opened. Muriate of lime or sulphuric acid should be put in different places to attract the moisture. To purify the air from other injurious matters, the following substances are recommended, chlorine, nitric acid vapours, fumes of sulphur, evaporation of vinegar, coarsely powdered and moistened charcoal put in different places, fumigations with the vapours of elder berries. For rooms already inhabited a solution of chloride of lime is the most proper substance. Drawers and other furniture ought not to be placed too near the damp walls, and if the latter should be covered with mould, they ought to be touched with a solution of chloride of lime. In addition, warm and dry clothes must be provided, and the bed must not stand too near the walls. Straw or feather-beds must be changed frequently, or exposed to the sun.

Birkenhead Market.—The new market-house at Birkenhead was opened on Saturday week for the first time. The building is one of the largest in the kingdom, and is said to be superior to any thing in its admirable arrangements and accommodations. Large quantities of eatables of all sorts were displayed at the various stalls, and the purchases made were such as to ensure success to the renters of the shops and stalls. The entire cost of the building is about 24,000*l*.

PURIFYING WELLS, &c.

Sir, — Seeing an extract from The Builder respecting a suggestion of mine for purifying wells, cesspools, &c., I beg to state that the method communicated by me to the Society of Arts and Sciences, and rewarded by them by an honorary testimonial, was quite different to throwing a quantity of lime into the well. If there is a depth of water in the well the lime will be absorbed by it; if thrown into a dry well, it will be of no use whatever. The process is simply this:—On finding a well contaminated with carbonic acid gas (and no man ever ought to descend a well before this is ascertained, by lowering a lighted candle, which will be extinguished, if there be foul air, on coming in contact with the vapour), take about half a bushel of fresh burnt lime, put it in a bucket or kettle, pour water on it sufficient to slake it, but no more. When the lime has steamed a short time, lower it down in a steaming state, so that the bottom of the bucket is close to or rests upon the surface of the water in the well. By lowering it to this depth, if the well is foul near the bottom, it will be the more effective. It is by the affinity existing between the lime and the carbonic acid gas that the vapour is destroyed; by that affinity the carbonic acid gas seizes upon the lime, and is incorporated with it, and forms a carbonate of lime, which is perfectly harmless. In ten minutes the well will be in a pure state. I might add much more upon the effects of lime, used similarly, in vaults, graves, and vats, but, fearing to be too prolix, I conclude for the present. I am, Sir, &c.,

A. J. Green, Bricklayer.

Sudbury, July 19th, 1845.

SUSPENSION PIER AT WESTON-SUPER-MARE, BRISTOL.

It is proposed to annex the Island of Birnbeck to the main land, by means of a suspension-bridge on the principle invented by Mr. Dredge, of Bath. In opposition to this, it has also been proposed to approach the island by means of a roadway, formed of loose stones at the base, with a crown on the top of solid masonry; but as the difference in the cost will only be a few hundred pounds, it is not likely that the latter will find much favour.

Mr. Dredge has furnished the committee with several designs for the suspension-bridge. The whole length to be crossed is about 1,400 feet; of this he proposes that about 1,100 should be accomplished by means of the bridge to be composed of iron, the central span of which would be 545 feet, and the outside openings 272 feet. The remaining 300 feet he proposes should be solid masonry. The height of the towers above the roadway is intended to be 42 feet. The platform is designed to be hung on two main suspending chains.

President of the Royal Academy.—The academicians find the selection of a new president so difficult a task, that they are unwilling to accept Sir Martin Shee's resignation, although it is certain that the state of his health even if he accede to their request that he should retain the office, will prevent him from performing its duties. An address was presented to Sir Martin a few days since, soliciting him to retain the presidentship, but we have not yet heard his reply.

The Association of Architectural Draughtsmen.—This association seems now to be very satisfactorily organized, and promises to be useful amongst other ways, in facilitating communication between its members and the profession generally. Architects may here at once learn the addresses of draughtsmen who are unemployed, and see their works. The place of meeting is 33, Southampton-street, Strand.

Reduction in the Price of Gas.—In addition to the cases we gave last week of provincial companies having resolved to reduce the price of gas, we have heard that at Bristol both companies have lowered their prices to 7*s.* per 1,000 cubic feet; at Aberdeen 4*s.* satisfies the rival companies; and at Doncaster a reduction of 10*d.* on the same quantity has been effected during the past fortnight. With respect to the reduction at Aberdeen it is worthy of remark that the far more extensive companies of Edinburgh, Leith, and Glasgow, having the coal at their very doors, charge six shillings and sixpence.

New Books.

The Natural System of Architecture, as opposed to the Artificial System of the present Day. By W. P. Griffith, Architect, F.S.A. Published by the Author, 9, St. John's-Square.

The principal object of the ingenious work before us is to establish, or rather re-introduce, those laws relating to proportion which the author maintains were acted on by the early and middle-age architects. Ancient edifices, he asserts, were the result of pure geometry, and he gives the following table to shew that the most perfect examples of Greek art were produced at a time coeval with the most celebrated Greek geometricians:—

Geometricians.	Eras.	Temples.	Eras.
	B. C.		B. C.
Thales	600	Delphos—Apollo	600
Pythagoras	550	Athens { Theseus	469
Eutocius	540	Athens { Parthenon	448
Hippocrates	450	Athens { Propylæa	435
Proclus	440	Olympia—Jupiter Olympius	435
Pappus	390	Athens—Erectheum	390
Serenus	390	Priene—Minerva Polias	340
Aristæus	350	Ephesus—Diana	340
Plato	310	Eleusis	315

"To teach weak mortals properly to scan,
Down came geometry and formed a plan."

Another portion of the work treats of the connection between architecture and music, and is to the effect that the laws which regulated a measured musical production regulated in like manner just proportion in architecture. On both these points much has been written and thought since Archimedes, who demonstrated that the proportions of certain solid bodies are the same as those of the musical consonances. René Ouvrard, a learned French ecclesiastic of the sevententh century, published a work entitled *Architecture Harmonique, ou application de la doctrine des proportions de la Musique à l'architecture* (Paris, 1679, 4to.), and afterwards a supplement (1682) called *Calendarium novum perpetuum et irrevocabile*, but this he was prevailed on by M. Arnauld to suppress.

Upon the forms of the five platonic bodies, viz.:—the *Tetrahedron*, or regular pyramid, which has *four equal* triangular faces; the *Hexahedron*, or cube, which has *six equal* square faces; the *Octahedron*, which has *eight equal* triangular faces; the *Dodecahedron*, which has *twelve equal* pentagonal faces; the *Icosahedron*, which has *twenty equal* triangular faces, Mr. Griffith endeavours to shew that the arrangement of all the Grecian buildings was based, and some of the plans do certainly present very singular coincidences if nothing more. The subject however is still obscure to those who now give their attention to it for the first time, although we dare say to our author, who has long dwelt upon it, the whole is so clear, that he will be surprised to hear us say so. We suggest that he should in the next edition of the book describe in words the construction of the various diagrams, step by step, and shew how the plan of the building is produced by them.

The Art of Land Surveying, explained by short and easy rules. By John Quested, Surveyor. Relfe and Fletcher, Cornhill.

This little volume, the author modestly says, is arranged for the use of schools, farmers, stewards and others, who may want just such a knowledge of surveying as will enable them to do all that is needful in that art on the farm. There are many others, however, to whom it would be more useful than some larger and more pretending works; and we recommend it to all who wish to obtain a knowledge of surveying and plotting land with the chain or cross-staff. The language is plain, and the directions clear.

Hunt's Improved Patent Urinals.—Mr. Hunt, of Queen's-row, Pimlico, has invented a basin of highly vitrified porcelain, which is admirably adapted for its purpose, and cannot fail to be extensively adopted in railway stations and other public places. Water is admitted to cleanse it through a series of small holes all round the rim. It is superior to any thing of the kind we have seen, and deserves to be generally known.

Correspondence.

THE ROUND TOWERS OF IRELAND.

Sir,—In my observations on the round towers the principal point aimed at was to assign the tower to the same date as the adjoining church. In this opinion your correspondent, "Veritas," seems to agree, but states that "he found them near the castle quite as often as the church." This statement is correct, but "Veritas" ought to have mentioned *how many he did find*.

Now out of 118 round towers upwards of 100 still exist; and it is no proof of the point he endeavours to establish, "that they are found near the castle quite as often as the church," because he happens to find a round tower and an old castle adjoining, *minus* the church; such a fact *at the present day* is no proof, far from it, that there never was a church in the vicinity.

It so happens the old tower I particularly referred to (Aghadoe) stands within 57 feet of the dilapitated church, and at a distance of about 200 feet stands an old castle.

Again, we have Ferns, once an ecclesiastical city of great note, having at the present day the ruins of an ancient abbey, the remains of a fine cathedral, and the mouldering walls of the once proud castle of the Kings of Leinster, whilst not a vestige of its former lofty round tower can be traced.

One thing I candidly admit, my powers of vision are not equal to that of "Veritas;" rocks, hills, or mountains, in nine cases out of ten, form a complete screen to their being "within sight of others." Parties taking a trip in an air balloon, or the "aerial machine," would at once contradict this assertion.

There are no examples of these towers in any part of Europe at the present day except one at *Aix-la-Chapelle*, close by the celebrated cathedral (built by an *Irish* architect at the close of the eighth century), and two in Scotland.—I am, Sir, &c., J. K.

Gorey, July 16th, 1845.

THE COLOSSAL STATUE AND THE UN-COLOSSAL TRIUMPHAL ARCH.

Although we entertain for H. G. the Duke of Wellington every respect due to his high position, we cannot help remarking, that our forefathers hardly ever erected monuments to living men. Joseph II. and Goethe declined it most peremptorily. Besides, there is some anomalous inconsistency in placing the *image* of any one in the public streets, whom every one may see *in propria personâ*. In fine, every monument implies something sepulchral, as it were; viz. the preserving of some one's *memory*, which is incongruous with a person who does yet *exist*. However this may all be—monuments *have* been erected to the living now-a-days.

Turning our attention to the colossal statue to be placed on the triumphal arch in Hyde-park—we perfectly coincide with what has been said in the last number of this journal; intending merely to throw out another remark, which, we trust, will have some *weight*. The statue, namely, is colossal (15? tons), but the arch does not seem to us of a solidity to bear any thing colossal—in fact, the architect never intended it for such purpose. The consequence, therefore, *may* or will be, that the arch will not be *able* to stand such a burthen. And then, somewhat in the year 1860 or 1870, the colossal statue will out-wear the arch—and on some fine day this will give way, and the statue come down, and of course, break to pieces. Then, both will have to be re-built and re-*cast*; in which way, however, this is to be done, will depend on the *cast* of character of the men of those latter days. J. L——y.

ARCHITECTURAL COMPETITIONS—CHURCH AT CAMDEN TOWN.

Sir,—Knowing that the columns of your valuable journal are always open for advocating the cause of justice, I take the liberty of troubling you with a few remarks respecting the late competition for the church at Camden Town. Some time since, a committee was formed who invited a limited number of architects to furnish designs for the church, the cost of which was not to exceed 6,000*l*. A design was at length fixed upon prepared with the usual showily-tinted foreground of competition drawings;* but on deliberation it was found that it would cost a very much larger sum to carry it out, and therefore I contend the decision should have been set aside, and the church submitted to a fresh competition, instead of which, the successful architects were desired to prepare a new design which could be executed for the stipulated amount.

Now, as any of the other competitors could have prepared designs of much more magnificent appearance than those they sent in (supposing no regard were paid to the cost of erection), and could afterwards very easily have made another which could be carried out for 6,000*l*., I think it was giving the successful competitors a most undue advantage, and I trust you will consider the subject of sufficient importance to occupy a corner of your journal.

I am, Sir, &c.

One of the Competitors.

London, July 19th, 1845.

*** If the fact be as stated by our correspondent, it was a fraud, and nothing better; a robbery of the time, skill, and money of those competitors who adhered conscientiously to the instructions of the committee. How long will architects subject themselves to these insults? Professor Hosking, in a lecture delivered at King's College some time ago, and afterwards published, exposed the degrading tendency of the system: we shall take an opportunity to bring it again before our readers.

ANNUAL DINNER OF MESSRS. BUNNETT AND CORPE'S WORKMEN.

Sir,—Coinciding most entirely as I do with your correspondent J. O., in last week's Builder, as to the highly beneficial results of occasional social meetings of large numbers of men engaged in the same occupation, I take the liberty of stating, that the same locality (the Greyhound, Dulwich), was on Saturday last, the resort of the workmen in the employ of Messrs. Bunnett and Corpe, patentees of the revolving iron shutters, &c. The men, to the number of eighty, sat down to an excellent dinner at 2 o'clock, Mr. Stuart, the foreman, in the chair, several master tradesmen doing business with the firm being also of the company. The afternoon was spent in various manly sports, for which that place is so admirably adapted, and in the evening the company were gladdened by the attendance of their respected employers—

"Whose easy presence checked no decent joy,"

and whose substantial addition to the means of convivial enjoyment was duly appreciated.

The respectable and intelligent appearance of the men, who started from the works at Deptford in four vans, the rational character of their recreations, and their orderly conduct throughout, impressed all who saw them with a very high opinion of their worth, and furnished incontestible evidence of the great moral improvement that has taken place in the habits and characters of this class of men.

I am, Sir, &c.,

A Visitor on the Occasion.

Miscellanea.

Leamington Cemetery.—At a preliminary meeting held at the Regent's Hotel, Leamington, last week, a resolution approving of the establishment of a public cemetery under the power and authority of a legislative enactment, with a chapel and all necessary vaults, catacombs, &c., was unanimously adopted, and a committee formed.

Prevention of Damp.—In reply to some inquiries under this head, which have appeared in our pages, a correspondent has directed our attention to the appendix to the 2nd report of the commissioners on the fine-arts, containing evidence of the efficacy in keeping down damps, of a layer of Seyssel Asphalte spread on the horizontal surface of the walls above the ground level.

Proposed Carlton Club-House.—There is a strong party in the club opposed to building, and they have succeeded in obtaining the postponement of the project till next year.

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* I beg to refer to the advertisement in the first page of "Pugin's Contrasts"—"Wanted a person to do showy foregrounds for competition drawings,"—for I think the remark perfectly just, as some competition drawings are now so showily tinted, that one would almost imagine that colours, box, and all had been exhausted to attract the notice of the committee.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For Lighting the town of Woodbridge in Suffolk with Gas.

For certain alterations of the premises (formerly the Post-Office), in Crown-street, Bury St. Edmunds, and for a New Building.

For supplying her Majesty's several Dockyards with Canada Red and Yellow Pine Timber, Rock Elm Timbers, Spruce Deals, and Ash Oar Rafters.

For the restoration of the Norman Tower, Bury St. Edmunds.

For the erection of three additional wards at the Bedminster Union Workhouse, situate at Long Ashton.

For the executing the skeleton of Glenorthy Castle, County of Limerick, Ireland.

For building sewers in Gray's-Inn Lane, from the end of Elm-street to Liquorpond-street, and along Liquorpond-street to Crown-court, being about 800 feet in length: also, for a sewer in Red Lion-street, Clerkenwell, being about 480 feet.

For supplying her Majesty's several Dockyards with Dantzic Oak, Thickstuff, and Plank.

For Building a Sewer in Fleet-street, from Temple-bar to Water-lane.

For Lighting the Parish of St. Mary, Rotherhithe, with the Essential Oil of Tar, for One Year, from the 24th of August next.

For Building a New Union Workhouse, to contain 1180 Persons, for the Guardians of the Clifton Union.

For supplying her Majesty's Dockyard with Honduras Mahogany Timber and Polish and Italian Larch.

For the complete restoration of two Windows on the south-side of St. Thomas's Church, Salisbury; also, for Cleaning and Whitewashing the interior of the same Church.

For certain alterations at the Workhouse of St. Mary's Parish, Islington.

For the execution of Works on the Leeds and Thirsk Railway.

For Coupled Locomotive Engine and four-wheeled Tender, to contain 700 gallons, for the Manchester and Birmingham Railway Company.

For the execution of Works on the Newcastle and Berwick Railway.

COMPETITIONS.

Plans are required for Laying out and covering with Villa residences about 20 Acres of land having a frontage of about half-a-mile to the Queen's-road, Richmond, Surrey, extending from Spring-grove towards Richmond-hill. Premiums will be given of 25 guineas for the most approved plan, and 15 guineas for the second.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At the Crown and Anchor Inn, Ipswich: the Martello Tower (V), situate on the point at Bawdry, Suffolk, near the ferry, and within 100 yards of the sea.

At Ossington Woods, near Newark: a large quantity of superior Oak, Elm, Larch, Spruce, and Scotch Timber.

At Messrs. Westlake's Timber Ponds Wharf, Southampton: the entire and selected cargo of Red and Yellow Pine Timber and Deals; ex. "William" Hascroft, from Quebec.

At the Crown Inn, Frome: 307 Oak and Ash Timber Trees; the whole of large dimensions and superior quality.

At Little Bentley Hall, Essex: 200 particularly straight and good Larch Fir Trees.

BY TENDER.

In the Plantations of the Duke of Montrose, situate in the Parishes of Drymen and Buchanan, Stirlingshire: many Thousands of Larch Trees of some size, adapted for Railway Sleepers, Roofing and Joisting, and other purposes.

TO CORRESPONDENTS.

"St. Mary's Church, Nottingham." — *Having little authorized information on the matter, we cannot insert the anonymous communications we have received. We shall be glad to see the account in the* Nottingham Journal *referred to by one of our correspondents.*

"Q. Q."— *As the letter did not arrive in time for us to reply as desired, it would probably be useless now to do so.*

"P. C. A."—*We are obliged to our correspondent, but cannot promise at this moment to engrave the diagram.*

"Amicus." — *We are obliged by his communication, and have availed ourselves of the information contained in it. Opinions, however, we do not insert but on good ground.*

"Mr. B."— *The cards for Mr. Fraser's entertainment, at which the Spitalfields' School of Design attended, did not reach us in time.*

"W. B." (Guernsey.)— *General Pasley's work on limes, &c., is out of print, but a new edition will be published shortly. Vicat's work on the same subject, translated by Captain Smith, may be had at Weale's, High Holborn.*

"F. T." — *We regret that we have not time to enter into the question asked.*

"B. Green." — *The diagram is in the hands of our engraver.*

"Patent Glass Tiles." — *We have had several inquiries as to where these are to be procured: can any of our readers tell us?*

"J. G." (Oxford.) — *Gwilt's Encyclopædia of Architecture, published by Longman. Nicholson's Architectural Dictionary, 2 vols., 4to.*

"Hoisting Building Material." — *A builder wishes to know where the machine for hoisting materials by means of an endless chain may be obtained on hire.*

"W. S." — *We regret we have not space for the letter. Our correspondent is hardly correct in his dates.*

"B. B."—*Next week.*

Received: "M. R." "P. A. T. H." "T." "A constant contributor."

ADVERTISEMENTS.

PUBLICATIONS.

Just published, price 5s., neatly bound in roan, with tuck, gilt edges, and lettered, a Pocket Edition of

A CYCLOPÆDIA of the NEW METROPOLITAN BUILDINGS ACT, together with the Act itself, a Folio Table of the Metropolitan Districts (old and new), a List of the Surveyors, with their Residences and Offices, and a Table of Fees to be paid to the Registrar for services performed.

In the Cyclopædia all the details of the Statute are arranged Alphabetically, so as to be instantly found, and accompanied by extensive references and counter-references to the sections of the Act itself and its minute provisions.

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ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

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Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

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TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

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MARTIN'S PATENT CEMENT.

TO ARCHITECTS, BUILDERS, AND PAINTERS IN FRESCO.

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Agent for Liverpool and Manchester, Mr. R. Part, 11, Atherton's-buildings, Dale-street, Liverpool.

TO ENGINEERS, ARCHITECTS, AND BUILDERS.

PATENT METALLIC SAND CEMENT.—The Metallic Sand, from its chemical qualities, forms, when mixed with blue lias lime, a metallic cement of great strength and density; the iron, which is one of its principal constituents, combining with the bed in which it is deposited, and communicating to it a greater degree of hardness than can be obtained by admixture with any other known material. Concrete and mortar in which the metallic sand has been used are more durable than any other, continuing to indurate with time, and not being affected by damp, otherwise than by increasing in hardness from the oxydation which is thereby occasioned. Employed as a cement to turn water from brickwork in tunnels, sewers, and other underground works, the Metallic Sand is found cheaper, and from its eminent adhesive qualities to form a more solid and hydraulic body, in combination with the brickwork, than any other cement at present known; and in all cases the Metallic Sand is found the best substitute for pozzolano that has ever been presented to the public. As an external stucco, the Metallic Cement assumes a rich stone-colour without the aid of paint or tint of any kind, does not vegetate, and is entirely free from cracks and blisters, and continues to improve both in appearance and durability by exposure to the weather. The Proprietors refer with confidence to works in which the Metallic Sand has been extensively employed as concrete and mortar, specified in the prospectus, where also will be found references to very extensive erections which have been stuccoed with the Metallic Cement.

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In Liverpool and Manchester, Keene's Cement has in several cases been used for the covering of the fire-proof warehouse floors, where its lightness and hardness give it the preference over tiles and flagging, which are much heavier, and necessarily leave the floor intersected with numerous joints, whilst Keene's Cement is laid down in one unbroken surface.

The high polish and marble-like hardness of which this Cement is susceptible render it the most suitable material for the manufacture of Scagliola.

Patentees, J. B. WHITE & SONS, Millbank-street, Westminster, Manufacturers of Roman and Portland Cement.

Depôt in Liverpool, 36, Seel-street; James Woods, Agent.

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